Inflation and the Taxation of Personal Investment Income:

An Analysis and Evaluation of the Canadian 1982 Reform Proposals

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Ontario Economic Council
Special Research Report

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Ontario Economic Council
81 Wellesley Street East
Toronto, Ontario
M4Y 1H6

Printed in Canada

ISSN 0225-591X

ISBN 0-7743-7745-3

These papers reflect the views of the authors and not necessarily those of the Ontario Economic Council. The Council establishes policy questions to be investigated and commissions research projects, but it does not influence the conclusions or recommendations of authors. The decision to sponsor publication of these papers was based on their competence and relevance to public policy.

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Preface

The Ontario Economic Council's mandate, as set out in the legislation creating the Council, is to contribute to public discussion and understanding of socio-economic issues that have special significance for the people of Ontario. The federal government's recent background paper, Inflation and the Taxation of Personal Investment Income, proposes measures that will have a dramatic impact not only on the economic well-being of all Ontario residents but on the budgetary position of the province as well. In effect, the proposals contained in the federal background paper represent one of the most fundamental reforms of the personal income taxation system in the post-war period. Despite the obvious importance of these proposals, there has been little public awareness or discussion of their many implications. Accordingly, the Ontario Economic Council has commissioned the three background papers and the eleven responses to them that constitute the present volume.

These papers reflect the views of their authors and not necessarily those of the Ontario Economic Council. However, in view of the significance of the federal proposals, the Council has gone a step further and produced, as a separate volume, a statement of the Council's position with respect to the proposals ("Inflation and the Taxation of Personal Investment Income": An Ontario Economic Council Position Paper on the Canadian 1982 Reform Proposals). Naturally, the background studies in the present volume have been important in formulating the Council's consensus document.

I would like to thank the many authors and discussants. The Council greatly appreciates their diligence and co-operation under the severe time constraints involved in this project. I would also like to thank the Council staff, who contributed time beyond their normal duties in order to meet our deadlines.

Following the publication of the federal background paper, the Minister of Finance constituted a "blue ribbon" committee, chaired by Mr. Pierre Lortie, to evaluate the federal proposals. The deadline for written submissions to this committee was August 31, 1982. A pre-publication draft of the studies in this volume was forwarded to the Lortie Committee in accordance with the deadline.

Thomas J. Courchene
Chairman
Ontario Economic Council

Introduction

The Honourable Allan MacEachen's June 1982 budget was accompanied by a discussion paper, Inflation and the Taxation of Personal Investment Income. Mr. MacEachen appointed a committee to investigate the advisability of implementing the proposals contained in this White Paper, and he also invited Canadians to submit their views concerning the proposals.

The Ontario Economic Council responded to this invitation by commissioning the three studies that form the basis of the present book. The Council then sponsored a conference to examine the completed studies, arranging for the discussants to present formal comments for inclusion in this volume. These comments follow the three major papers.

THE WHITE PAPER PROPOSALS

The White Paper proposals are based upon a judgment that the rapid and persistent inflation of the past decade has caused our existing tax structure to create inequities and inefficiencies that were not intended when the tax structure was implemented. In view of these inequities and inefficiencies, the White Paper argues, Canadian governments should seriously consider not only methods for reducing the rate of inflation but also certain proposals that would alter the basic tax structure itself. Specifically, the White Paper recommends the implementation of two new programs: the first will provide indexed term deposits and loans, and the second will establish indexed investment plans.

The following is a summary of these proposals:

Indexed Term Deposits and Loans

A new type of debt instrument, the indexed term deposit (ITD), will be created. The yield will be divided at year-end into two components: a yield equal to the rate of inflation, which will not be taxed, and the remaining "real" yield, in excess of inflation, which will be taxed under the existing rate structure. These term deposits will flow through financial institutions as a new type of indexed term loan (ITL) to borrowers who must be either purchasers of new homes, or farmers, fishermen, or small businesses purchasing new depreciable property for use in Canada. The ITL's will also have a yield divided into two components: a yield equal to the rate of inflation and a real yield. In calculating their income tax, business borrowers will be able to deduct only the real interest cost of the ITL, not the inflation-indexed portion of the interest cost.

Other elements of this proposal include the following:

- Income reported from ITD's will not be eligible for the $1,000 investment income deduction.

- Interest on funds borrowed to purchase an ITD will not be deductible in calculating income tax.

- Purchasers of ITD's must be individuals resident in Canada.

There are many basic questions about ITD's and ITL's that the proposals do not answer, including the following:

- If the real yield on ITD's is less than zero, will the negative real yield be deductible against other income in calculating income taxes?

- Will ITL's be transferable and/or renewable, or will they have to be repaid upon sale of the related asset?

- If the supply of ITD's exceeds the demand for ITL's, will rationing occur through yield adjustments in the market or through rationing of ITD's in accordance with future government directives?

- If an ITL is indexed using a general price index that exceeds the inflation in value of the related asset, how will the financial institution making the loan protect itself against default as its real security diminishes?

- Will the Consumer Price Index (CPI) be used for all indexation calculations?

Registered Shareholder Investment Plans

A new type of investment program, the Registered Shareholder Investment Plan (RSIP) will also be created. Individuals resident in Canada will be able to contribute to an RSIP through an investment dealer or other specified financial institution. The institution will purchase on the individual's behalf listed common shares of taxable Canadian corporations. At year-end, the institution will determine the market value of the shares and perform an indexing of the individual's contributions to the RSIP. The difference between the market value and the indexed value will be reported by the individual as a capital gain or capital loss each year for tax purposes. Other elements of the proposal include the following:

- The current system of taxing one-half of capital gains will continue, but one-half of capital losses from the plan will be eligible as a deduction from the individual's income from any source in the year and will not be subject to the present $2,000 annual limitation.

- Individuals will be required to include these capital gains and losses in their tax calculations each year, regardless of whether any disposals have actually occurred.

- Indexation will be calculated on the aggregate of all the investments in an RSIP.

SUMMARY OF THE STUDIES

Each of the three major studies presented in this book contains many detailed insights into the relationship between inflation and our current tax structure. Each study also recommends measures that could reduce the inequities and inefficiencies caused by this relationship. Peter Howitt's paper develops a thorough theoretical analysis of Mr. MacEachen's proposals and the implications of their implementation. The study by David Forster and John Thompson examines the practicability of these measures from a tax-compliance point of view. G.V. Jump and T.A. Wilson compute estimates of the financial impact of the proposals and focus on specific modifications that could improve the proposals.

Throughout his analysis, Howitt demonstrates the failure of our existing financial relationships to adjust appropriately to the persistently high inflation of the past decade. Quite apart from tax considerations, inflation has created severe difficulties in the negotiation and repayment of loans. Because his analysis suggests that the development of indexed debt would reduce these difficulties, he recommends that indexed debt be issued by all levels of government. Pension funds could acquire these indexed instruments and offer indexed pensions and annuities. Thus government involvement could stimulate a beneficial large-scale shift to indexation.

Howitt points out the likelihood of tax avoidance with the proposals, as people will increase their indebtedness from interest-deductible loans so as to take advantage of the tax-savings offered in the proposals.

He suggests softening the accrual feature of RSIP's by allowing deferral with an interest charge. To reduce default risk on indexed residential mortgages, Howitt suggests the use of housing price indices for mortgage indexation or the use of compensating deposits.

Howitt predicts a negative real interest rate for indexed term deposits. He expects that conventional interest rates will not shift much with the introduction of the new securities.

A prediction of major importance is that the restriction of indexed term loans to the acquisition of new assets will result in a market price gap between old and new versions of similar assets of as much as 30 per cent. A windfall loss will obviously hit existing homeowners, and this emphasizes the need to remove the proposed eligibility restrictions.

Howitt comments extensively on the choice of a particular index and recommends establishment of an Indexation Commission to assist in solving practical difficulties and in educating the public. He emphasizes that "Financial intermediaries ought to be given the greatest possible latitude in the design of ITD's and ITL's so as to take the greatest advantage of the Canadian financial system's flexibility and capacity for innovation." (p. 43)

Forster and Thompson agree with the White Paper that the introduction of a comprehensive indexing system for tax purposes is not feasible at the present time. They recommend further study - noting, however, that the federal government should not await final resolution of the question of financial reporting in inflationary times, since the accounting profession is heading towards a method which would not in any event be suitable for tax purposes.

Forster and Thompson find the proposal for indexed debt instruments to be innovative and workable, although the simplicity with which it is presented is misleading in view of the technical considerations involved. Furthermore, since the new debt instruments could eventually form part of an indexed tax system, it is especially important that the technical aspects be well ironed out. The indexed debt instruments would necessitate the drafting of complex legislation defining the relevant terms used in the proposal.

The proposed types of debt instrument are not a necessary part of a move to a comprehensive indexed tax system. However, if widely adopted, they could assist in the difficult transition to a comprehensive system and be integrated with it.

The man in the street may find the debt instrument proposal confusing, since it promotes a kind of thinking suitable to times of high inflation, while at the same time the federal government is attempting to lower inflation. To reinforce the psychology of the "6 and 5" program, consideration might be given to capping the indexing of the debt instruments at those levels. The impact on financial markets would be softened, and the eligibility of borrowers could then be broadened.

Forster and Thompson view the proposal for RSIP's in quite a different way. This proposal appears to be of little benefit in leading towards comprehensive indexing, and it contains subtle tax reforms which should be separately discussed. If an incentive to purchase shares of Canadian companies is needed, some other means should be found.

Jump and Wilson analyze taxation statistics to compute estimates of the potential demand for indexed term deposits. They conclude that "the outstanding feature of the estimates is their large magnitudes.... Even if intermediaries offer a real rate of -2.0 per cent, the response of the public to ITD's is potentially staggering." (p.80) Since their estimates are extremely sensitive to assumptions regarding the nominal rate of interest and the rate of price inflation, they indicate that great uncertainty must be attached to the outcome of adopting the White Paper proposals.

Jump and Wilson also compute estimates of the revenue loss that would be caused by the tax concessions in the proposals. They indicate that broadening the eligibility requirements for indexed borrowers may not increase the revenue loss. Hence revenue loss is not a valid reason for refusing to expand the eligibility of borrowers. Such a broadening of eligibility is essential for the efficient allocation of capital. They also recommend an extension of eligibility in the RSIP proposal. All listed assets should be included if this plan is implemented. Other assets should also be included, with taxation on realization and with interest payable on the tax deferral at the time of realization.

The writers emphasize that participation in the indexed debt market must be open to all financial institutions that both issue deposits and make loans. Furthermore, these institutions should be free to develop their own mechanics for making indexed loans and deposits. In addition, the concept of forced matching of loans and deposits should be abandoned.

Jump and Wilson share the strong feelings of the other writers that the principle of indexing is more properly viewed as a fundamental structural change in the tax system rather than as an arbitrary device to channel low-cost loans into sectors of the economy that are - for the moment - cyclically depressed. They recognize the financial difficulties faced by small businesses, farmers, fishermen, and homeowners who are borrowing at current high rates of interest. However, the government does have many policies of short-term, sector-specific assistance available to it. The government should expand these rather than look to basic tax reform as a counter-cyclical device.

SUMMARY OF DISCUSSANTS' COMMENTS

As part of its evaluation process, the Council sponsored a seminar at which the following discussants presented commentaries:

Myron Gordon, Faculty of Management Studies, University of Toronto
C.K. Marchant, Capital Cities Consultants, Toronto
Jack Mintz, Department of Economics, Queen's University

James Pesando, Institute for Policy Analysis, University of Toronto

Douglas Purvis, Department of Economics, Queen's University

Murray Rumack, Partner, Clarkson Gordon, Toronto

William Scarth, Department of Economics, McMaster University

John Todd, Econalysis Consulting Services Inc., Toronto

Ronald Wirick, Department of Economics, University of Western Ontario

The discussants spoke in alphabetical order, an arrangement preserved in the recapitulation of their comments that makes up the second section of this book. Some discussants prepared written commentaries in advance of the seminar; others preferred to address what was said at the seminar itself. The resulting papers range from more or less formal expositions of particular aspects of the White Paper proposals to transcripts of remarks that address the issues of inflation, taxation, and indexation generally and informally. It should be noted that as the conference proceeded, discussants omitted points already covered by others, and that editing has further reduced repetition.

It was felt that more attention should have been paid in the conference to the impact of the proposals on small business. Consequently, C.K. Marchant has expanded his remarks on this subject, and his commentary has been included as a discussant's paper.

Samuel Martin, Faculty of Business Administration, University of Western Ontario and Professor Lawrence Smith, Department of Economics, University of Toronto, have contributed their views even though they were not able to attend the seminar. John Bossons, Institute for Policy Analysis, University of Toronto, has added an analysis of the indexation of mortgages, which appears as an appendix to the book. This appendix does not bear directly on the debate, but it makes an important contribution to understanding the indexation issues.

During the conference, no formal attempts were made to determine whether a consensus existed in regard to specific issues. The following points did receive emphasis and are presented here because of their importance. These points do reflect the nature of the discussion, and they are given more fully in the section devoted to the discussants' comments themselves.

- Desirable as indexing personal investment income may be, Canadians should not lose sight of the fact that it remains even more desirable to improve our performance on the inflation front. Changing the tax structure should not be allowed to distract attention from the struggle to reduce inflation.

- A system of inflation indexation for investment income would mean that the costs associated with the fight against inflation would be borne more equally across the various sectors of the economy - unlike the present situation, in which some sectors bear a much heavier burden of these costs than others.

- Risk reduction from the indexation of term deposits and loans would be minimal for short term loans and deposits. Risk reduction would only be significant for long-term lenders and borrowers.

- The question has been raised as to why the market has not already responded to the risks caused by inflation by developing indexed loans on its own. One possible answer is that the market has responded instead through a shortening of the term of loans. Whereas this does reduce inflationary risks, the significant reduction of long-term debt relationships has serious negative implications for economic activity.

- From the point of view of business borrowers, indexed term loans may result in higher costs than conventional borrowing because tax deductibility will only be allowed for the real portion of the interest costs, not for the indexed portion. Consequently, profitable businesses are unlikely to use the ITL's, as currently designed in Mr. MacEachen's proposals. This implication of the ITL proposal could only be eliminated by an accompanying reform of the inflation-induced biases in the taxation of business income. Although the obstacles to such changes are formidable, the design of reasonable compromise measures may be feasible.

- The business sector facing the most difficulty in raising capital consists of new, small, venture capital firms. Shares of many such firms have been excluded from the RSIP proposal, as RSIP's are restricted to shares listed on a Canadian stock exchange. As currently designed, the RSIP proposal will not substantially enhance risk-taking; rather the proposal will basically benefit the secondary share market. Consequently, the RSIP proposal should be extended to include the shares of any Canadian corporation. A simple extension of the RSIP proposals would involve two difficulties: year-end share evaluation for tax purposes and liquidity problems for shareholders compelled to pay tax on accrued capital gains that had not yet been realized. These difficulties should be overcome through taxation on realization only, rather than on an annual accrual basis as currently proposed.

- By allowing only new depreciable assets to qualify for ITL's, the proposals ignore the serious impact of inflation on inventories and the difficulty of financing the replacement of inventories. This is not satisfactory, and the ITL's should be broadened to cover inventory investment.

- The federal and provincial governments and their agencies should offer indexed bonds to the public, with only the real portion of interest payments being subject to taxation.

- Since Canada is a net debtor vis-à-vis other countries, the proposals might result in some transfer of tax revenue to other countries, particularly the United States. This transfer will be greater as eligibility is broadened. Hence care should be taken in broadening eligibility to minimize this transfer of tax revenue.

- ITD's may be so attractive as to reduce the demand for money. Consequently, the monetary growth targets of the Bank of Canada may have to be altered downwards if the proposals are implemented.

- A number of distinct groups will be beneficiaries of the MacEachen proposals, including high marginal tax rate lenders, low marginal tax rate borrowers who are buying new assets, and the financial intermediaries. Others will lose to the extent that tax revenue falls, requiring general tax increases now or at some future date to meet the increased debt burden, and to the extent that they own assets which will fall in market price. Owners of existing homes will be particularly hard hit.

- The transferability and the renewability of ITL's are extremely important. The implications of the proposals - favourable and unfavourable - will depend to a major degree on these issues. If an ITL cannot be transferred on the sale of an asset or cannot be renewed at the end of the term, then the relative advantage of such financing will be substantially less than envisioned in much of the discussion. The negative impact on the price of existing assets will also be substantially less.

- The financial intermediaries may face difficulty in balancing ITD's and ITL's and may need a lender-of-last-resort facility to assist in this balancing. The government should consider provision of such a facility.

- The expected decline in prices of existing homes - due to the competitive advantage of new homes financed by ITL's - will be intensified as people invest in RSIP's and ITD's as an inflation hedge. That is, the proposals will create new inflation-protected investment shelters. In the past, home ownership has been seen as a principal means of such inflation protection. In this respect, the proposals will decrease the demand for home ownership.

- To some extent, the proposals are intended as a subsidy to borrowers. It should be noted that this is an expensive way to deliver a subsidy, since the financial intermediaries will collect a substantial portion of the subsidy as an administration fee. Direct subsidies to farmers, fisherman, small businesses, and homeowners would achieve much more impact per dollar of cost.

- The public believes that the proposals will assist homeowners who are renewing mortgages. With current high interest rates, this group is experiencing severe financial difficulties. It should be emphasized that the proposals provide ITL's to only new homes, that existing homeowners will not be eligible for ITL's, and that prices of existing homes will be seriously and adversely affected by the proposals. Public perception should be rectified in this regard before implementation.

- In an ideal world, the desirable approach is a comprehensive indexing scheme. It is clear that there are some real-world problems that make such a scheme unattainable. Nonetheless, the principle of comprehensive indexation is an important bench-mark by which to evaluate any specific proposals. In general, reforms to be preferred are those that move in this direction.

- The federal government's position appears to be that its proposals are the first step in a movement toward a more generalized approach to indexing. On the other hand, it does not spell out what the succeeding step or steps might be or when we can expect them. Indeed, it is even possible that reform will end with the present set of proposals.

- If the federal government proceeds with its present proposal, it is imperative that it also alert Canadians to the necessary future changes in the tax system and the timing thereof. To put it somewhat differently, where are these proposals leading? The taxation system plays a major role in the lives of all Canadians, who need an overall framework within which to plan their futures.

- The designation by Ottawa of who is eligible to receive indexed term loans and who is not represents a new intrusion by the federal government into the operation of our financial institutions. This intrusion raises two very important issues. The first is that it opens the door to the potential for substantial government control over the allocation of credit across various sectors of the economy. The second relates to the constitutional division of powers, since the proposal would involve federal regulation over some provincially chartered financial institutions. These issues should be considered seriously since they form an integral component of the White Paper.

- Concern was expressed about the urgency with which the federal government has decided to press forward with its proposals. The time between the June budget and the end of August (when submissions were due) is simply too short to investigate in a full and meaningful manner almost any change in tax legislation, let alone a change that is as sweeping and far-reaching as that contained the current proposals.

Early in our evaluation of the proposals, it became clear that the subject of inflation and the taxation of personal investment income is far more complex than it first appears to be. Each policy option involves many implications that are not initially apparent. Hopefully, the insights, predictions, and recommendations contained in this volume will assist in the development of a wise approach to this important and difficult subject.

Papers

A First Look at the White Paper on Inflation and Taxation

Peter Howitt

This paper discusses the likely economic consequences of the White Paper, addresses some questions raised by it, and offers some suggestions. The paper begins with a discussion of the general principles involved. The second section is concerned with what kind of market would be likely to form for the proposed new indexed term deposits (ITD's), indexed term loans (ITL's), and registered shareholder's investment plans (RSIP's). The third section looks at how the proposals would affect interest rates, prices, volumes, and the distribution of capital gains and losses in existing asset markets. The next section investigates the short-run effects of the proposals on aggregate demand and employment. A fifth section investigates the likely nature and distribution of efficiency gains and losses under the proposals. The sixth section discusses some potential problems and suggests ways of dealing with them. The paper concludes with a summary of the main points.

GENERAL PRINCIPLES

The main objective of the RSIP plan is to remove a tax distortion caused by inflation under present tax laws. A shareholder whose capital gain falls short of the rate of inflation really suffers a capital loss. Despite this, he must pay taxes on the illusory gains, adding further to the real loss. Any capital gain in excess of the rate of inflation represents a real gain, but our tax system often turns such real gains into real losses by requiring the shareholder to pay taxes not only on the real gain but also

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on that part of the gain that would have merely compensated for inflation. This is not only unfair and inequitable: it also induces a misallocation of resources, encouraging people to overinvest in housing, consumer durables, and various tax shelters, at the expense of equity investment that would have been more profitable were it not for this tax distortion. Under the RSIP proposal, only real capital gains would be taxed. To the extent that capital gains fell short of inflation, they would be considered as fully deductible capital losses.

The ITD-ITL proposal deals with another example of money illusion in the tax laws - the taxation of nominal interest income and tax-deductibility of nominal interest costs. As with capital gains, interest income is real only to the extent that the rate of interest exceeds the rate of inflation. Only the real interest from an ITD would be taxed. Likewise, interest costs are real only to the extent that they exceed the amount by which inflation has reduced the real value of the debt. A 16 per cent loan imposes only a 4 per cent real interest cost if inflation proceeds at 12 per cent. For although the borrower must pay 16 per cent, part of it can be counted as repayment of the real principal, as compensation to the lender for the fact that inflation has reduced that principal by 12 per cent during the year. A business firm that borrowed through an ITL would be allowed to deduct only the real interest.

Another objective of the ITD-ITL proposal is to encourage the development of indexed debt instruments in financial markets. A conventional, non-indexed debt-instrument specifies a nominal rate of interest, leaving the real rate to be determined after the fact. The lender faces the risk that inflation may be much higher than expected, thereby reducing his real interest income. Likewise the borrower faces the risk of inflation being less than expected, thereby increasing his real interest cost. An indexed instrument like an ITD or ITL eliminates both these risks by specifying the real rate in advance.

Another potential benefit from indexed debt is its ability to improve the liquidity of borrowers. Under a conventional mortgage at 16 per cent when inflation is 12 per cent the borrower is forced to pay not just the 4 per cent real interest plus whatever fraction of the principal is involved in the amortization. He must also come up with enough cash to pay off 12 per cent of the real principal - the amount by which inflation reduces that principal. Under a fully indexed mortgage, inflation is not allowed to reduce the principal. Instead, the 12 per cent is added to the nominal value of the mortgage, keeping the real principal unaffected. The borrower does not have to raise the cash for that repayment and is therefore in a much more liquid position. At first his payments are a much smaller fraction of his income than they would otherwise be, which leaves more for discretionary expenditure and voluntary saving. Later, as inflation proceeds, the nominal payments will grow. Eventually they may become even larger than the payments on a conventional 16 per cent mortgage. But meanwhile the typical homeowner's income will also have grown, so the fraction of his income used up by mortgage payments could be expected to remain constant. This liquidity advantage could make an enormous difference to many Canadians who could comfortably afford to pay a 4 per cent fully indexed mortgage but cannot come close to meeting the initial monthly payments on a 16 per cent conventional mortgage, as well as to many small businessmen in a similarly illiquid position.

The present proposal would encourage indexed debt by giving it a tax advantage over non-indexed debt. This raises the question of why such a tax advantage is needed. The fact that indexed debt has not appeared under private initiative, without the tax advantage, may mean that, despite the big benefits in terms of risk and liquidity, the costs are even bigger. Why should the tax system encourage an activity that has so far failed the market test?

Several answers seem possible. First, the present non-existence of indexation may arise to some extent from uncertainty about how the tax authorities would treat indexed instruments. Similarly, money illusion in the present tax laws makes it impossible for the after-tax rate of return on any instrument to be fully indexed, especially if borrower and lender are in different tax brackets. For example, a mortgagor with an ITL under present tax laws would have a guaranteed real interest cost. But consider the mortgagee who has to pay tax on the income from the mortgage. Any unexpected increase in inflation would be offset by an increase in the nominal value of the mortgage, but since the mortagee has to pay taxes on that increase the offset is less than complete. He would find that, after taxes, his real return still varied inversely with inflation. To the extent that the present ITD-ITL proposal would remove tax obstacles that now inhibit indexation, it would give greater scope to market forces in determining whether or not indexation is worthwhile.

A second possible answer has to do with our convention of using money rather than real goods as our unit of account and standard of deferred payment. Social conventions are by their nature hard to change, especially when they are as widespread as this one, and so they tend to outlive their usefulness. The incentive to stay in line with everyone else can be a more important factor than social efficiency in determining the speed with which conventions change in the absence of collective action. Anyone who starts speaking another language, driving on the other side of the road, or using a different system of measurement finds life exceedingly difficult if others cannot be counted on to join him.

Third, the expected gain to anyone who undertakes indexation on his own initiative may not be worth the risk of the unfamiliar. Part of that gain is the knowledge that comes with experience - knowledge that can help others who follow. But no private individual or firm is likely to take such gains to others into account.

Finally, any financial intermediary that issues indexed debt will probably find itself exposed to great risk unless it also invests in indexed securities. Thus anyone who takes the private initiative will find that the problems of breaking with convention and venturing into the unfamiliar are compounded by the need to do so in two directions at once, and in a coordinated fashion.

This discussion does not exhaust the possible reasons for non-indexation, many of which constitute problems that will have to be faced under the present scheme. But it does suggest that indexation may be one of those areas where private markets cannot be counted upon to realize the full advantages without government intervention.

THE MARKETS FOR RSIP's, ITD's, ITL's

RSIP's

The market for RSIP's will depend largely upon two factors. First, it will depend on how many people find it advantageous to exchange the present deferral of taxes on capital gains outside an RSIP for the inflation protection within an RSIP. The fact that so little revenue is raised currently through capital gains taxation suggests that the advantages of deferral are indeed considerable. This may discourage many potential RSIP investors.

RSIP's are likely to appeal mostly to those who are planning to hold shares for only a short time and to shareholders of large "mature" companies, for whom dividends are large relative to any expected capital gains; these groups will find the advantages of deferral relatively small. How much demand can be expected from these and other groups is impossible to predict.

The second factor relates to the requirement that the interest costs of holding an RSIP will not be tax deductible. For it is not clear to what extent this requirement can be made effective. There will still be ways, some more legal than others, for a taxpayer to acquire an RSIP along with a fully deductible loan, with no other change in his portfolio. For example, someone who was planning to acquire assets for which he did not need to borrow may decide instead to borrow to acquire the assets and use the cash to buy an RSIP. Even someone already holding an asset could decide to sell it, use the proceeds to acquire an RSIP, then borrow to buy back the original asset. Indeed, he might be tempted not to bother selling and repurchasing the asset. He could just take out a loan, declare the interest on it as an expense of holding the asset, and use the proceeds to buy an RSIP. In view of the advantages of being able to deduct the full nominal interest costs and declare only the real component of capital gains, the extent of this kind of activity could be considerable. While no precise numerical estimates are possible, it may happen that the demand for RSIP's will come largely from those planning to increase their indebtedness so as to take advantage of the tax-saving. This kind of activity is surely not to be encouraged.

The ITD-ITL Spread

The markets for ITD's and ITL's must be considered together. The first question is how large the spread is likely to be between interest rates on the two instruments. On conventional term deposits and loans, the spread averages about 2 or 3 percentage points. But the spread on indexed debt may be larger, at least at first, because intermediaries who are unfamiliar with indexed instruments may want to proceed gradually. By keeping the ITD rate low and the ITL rate high, they could discourage much of the potential demand for these instruments.

As familiarity with the indexed instruments grows, competition will bring the spreads down, but they may remain higher than those on conventional debt. For although an intermediary with indexed assets and deposits will be fully hedged against the risk of inflation, he may be more exposed to default-risk. If a small businessman borrows with an ITL, and the value of his assets fails to keep up with inflation, the intermediary may find that the loan now exceeds the value of the collateral, forcing the borrower to raise more cash or be foreclosed. Under a conventional loan this would not happen unless the money value of the assets actually fell. Similarly, the value of a house may fail to keep up with an indexed mortgage, raising the possibility of foreclosure.

For several reasons, however, the difference in spreads is likely to be small or even non-existent. First, the default risk of ITL's will depend upon their exact design. Provided that they are given sufficient latitude, intermediaries might at first offer ITL's that are designed much like conventional loans. For example, an indexed mortgage with 5 per cent real interest, when 10 per cent inflation is expected, might require the same payments during the first year as a 15 per cent conventional mortgage, with 10 percentage points of interest counted as repayment of principal. At the end of the year, if inflation turned out as expected, the 10 per cent would be added back onto the principal, leaving the situation exactly as it would be with a conventional mortgage. If inflation were 12 per cent, the principal would be 2 per cent higher after the adjustment; if 8 per cent, the principal would be 2 per cent lower. From the lender's point of view, this mortgage would be only marginally riskier than a conventional 15 per cent mortgage.

For reasons we will come to shortly, the real rate of interest will be lower on ITL's than on conventional loans, making it possible to design such a mortgage so that it is even less risky to the lender than a conventional loan. For example, suppose the real rate on an ITL is 5 per cent when 10 per cent inflation is expected, but that the conventional mortgage rate is 19 per cent. The payments on the ITL in the first year could be scheduled the same as those on the 19 per cent mortgage. At the end of the year, before the inflation adjustment, more than 14 per cent of the nominal principal would have been paid off. If inflation had been 10 per cent, as expected, then after the inflation adjustment more than 4 per cent of the principal would have been paid off, considerably more than on the conventional mortgage. Only if inflation exceeded 14 per cent would the nominal principal of the ITL be higher after the inflation adjustment than on the conventional mortgage.

Provided that sufficient competition is permitted, this highly conservative indexed mortgage is unlikely to be used very widely, as it offers no liquidity advantage to the borrowers, although it does offer a lower rate and protection against an unexpected drop in inflation. Instead, some compromise between this arrangement and a fully indexed mortgage will probably be more prevalent.

Another design feature that could reduce the default risk on indexed mortgages would be the use of housing price indices for the indexation of the mortgages. Under this scheme, if the consumer price index went up by 10 per cent but housing prices went up only by 5 per cent, the value of the mortgage would go up only by 5 per cent. If these ITL's were matched by ITD's similarly indexed to a housing-price index, the intermediary would be protected against the risk of variations in the overall relative price of houses. These risks would be passed on to the lender, who, in this example, would receive only a 5 per cent adjustment during 10 per cent inflation. The banker would still be faced with the risk that any particular house would go up less than the index. This risk might be substantial if a nationwide index were used, since there is considerable geographical variation in house-price inflation. Use of a local or provincial index for indexing mortgages would reduce risk, although it would make the ITD's less attractive to borrowers. Perhaps a local index could be used on mortgages, backed by ITD's indexed to a national index. Large intermediaries such as the chartered banks would be in an ideal position to acquire a geographically balanced portfolio of mortgages, pooling the risk of geographical variation for the depositors at no cost to themselves. Small business loans might be indexed to the industry selling-price index, or some component thereof, with matching ITD's similarly indexed. Likewise, farm loans might be indexed to farm price indices.

A second factor that will limit the difference in spreads is the likelihood that intermediaries will respond to any increased default risk not only by increasing spreads, but also by stiffening the terms of the loans. Shorter amortization periods might be used, and higher down payments required. Intermediaries might also subject borrowers to more stringent tests of creditworthiness. As an extreme example, a fully indexed mortgage loan to someone with a 50 per cent down payment whose mortgage payments amounted to no more than 10 per cent of his income would hardly pose much of a risk.

Intermediaries could also require compensating deposits. A mortgagee might be required to make monthly purchases of term deposits equal to, say, half the difference between his monthly mortgage payment and the payment on a conventional mortgage. At the end of each year, if the value of the house had kept up with inflation, he would be permitted to dispose of the deposits as he wished. Otherwise some fraction would have to be held through the next year so as to maintain an agreed-upon margin of safety between the value of the mortgage and the combined value of the house and the term deposits. In the place of annual appraisals of the mortgagor's house, the calculation could be based on a local housing price index. Similar compensating balance schemes could be used for small business loans.

A third factor likely to limit the differences in spreads is the considerable risk already associated with the variable-rate mortgages (VRM's) offered by some financial intermediaries. Under these mortgages, if the going rate on conventional mortgages rises above the agreed-upon rate for the VRM, the extra interest is added on to the principal. The very conservative ITL described above, designed to mimic a conventional mortgage, is like a VRM except that the amount by which the principal is adjusted depends upon the rate of inflation, not upon the nominal mortgage rate. Since the nominal mortgage rate tends to be much more variable than inflation, the VRM's currently on the market are much riskier to the lender than a conservatively designed ITL would be.

One important aspect of the current Canadian situation may add to the default risk on indexed mortgages. Although there is considerable uncertainty about it, there is a very real possibility that at some time in the next five years inflation will come down from the current low double-digit range into the low single-digit range. If so, a substantial part of the incentive to home ownership - as an inflation-shelter - will be removed. With that, housing prices can be expected to fall, or at least to fail to keep up with inflation. Furthermore, the current scheme, by providing alternative inflation-shelters in the form of RSIP's and ITD's, is likely to remove some of that incentive even before inflation comes down. This increases the risk that house prices will fail to keep up with a mortgage indexed to the general price level. However, this risk is mitigated by (a) the possiblity of indexing the mortgage to house prices, (b) the fact that as inflation comes down the liquidity problems facing people who buy houses with conventional mortgages will diminish, a circumstance that will tend to raise the demand for houses, (c) the fact that the ITL plan itself will stimulate the demand for houses by its risk- and liquidity-advantages, and (d) the likelihood that any future fall in demand is already discounted in the presently low relative price of houses.

On balance, it seems that the spreads on some ITD-ITL combinations will fall to the same levels as on comparable conventional debt, with terms on ITL's similar to those on conventional loans. Competition should provide a variety of different designs of ITD's and ITL's. Those most closely resembling fully indexed instruments can be expected to have more severe loan terms and higher spreads. They will tend to attract borrowers with substantial equity but with cash-flow problems, and lenders with abundant liquidity.

Demand for ITD's

The next question is what the likely demand would be for ITD's. It would depend, of course, upon the real rate on ITD's (r^i), the nominal rate offered on conventional deposits (n), the rate of inflation expected by a depositor (π), and his marginal tax rate (t). Someone interested only in the expected return after tax would prefer ITD's at any real rate above $r^i = n - \frac{\pi}{1-t}$. Thus, if ITD's initially carried a real rate of zero, they would be preferred by any such depositor as long as he were expecting an inflation rate above $\pi = n(1-t)$. Values of this critical rate are displayed for various values of n and t in Table 1.

If after-tax expected return were the only consideration, a zero real rate would probably be more than enough to attract the $10-12 billion of ITD's forecast by the White Paper for the first year, or even the $20 billion forecast for the next year or two. For even if the rate on conventional deposits were as high as 18 per cent, ITD's would offer a negative after-tax real rate to most depositors in the 50 per cent bracket and to many in as low as the 30 per cent bracket.

But there are two other features of ITD's that depositors would consider. ITD's would offer a more certain real rate than conventional deposits, which would tend to make even more depositors prefer them. On

Table 1
Expected inflation that would make the after tax expected real rate on conventional deposits equal to zero

	Conventional deposit rate					
	10%	12%	14%	16%	18%	20%
Marginal tax rate						
0%	10%	12%	14%	16%	18%	20%
10%	9%	10.8%	12.6%	14.4%	16.2%	18%
20%	8%	9.6%	11.2%	12.8%	14.4%	16%
30%	7%	8.4%	9.8%	11.2%	12.6%	14%
40%	6%	7.2%	8.4%	9.6%	10.8%	12%
50%	5%	6%	7%	8%	9%	10%

the other hand, they would be less liquid than conventional deposits, since some part of the inflation adjustment would probably be locked into the principal each year rather than paid out in cash, which would tend to make fewer depositors prefer them. Which of these two additional features would predominate cannot be foreseen. However, on balance it seems quite possible that the real rate on ITD's would be negative at first, even if their volume were as high as forecast in the White Paper.

Interest-Rates and Volume on the ITD-ITL Market

The low rates on ITD's, combined with an only slightly higher spread than on conventional debt, would eventually make the real rate on ITL's much lower than the expected real rate on conventional loans. Tables 2(a) and 2(b) show how big that difference would be to (a) a household or business that cannot deduct interest costs, or is in a zero marginal tax bracket because of current losses, and (b) someone whose interest costs are deductible in a 25 per cent tax bracket. The assumptions underlying each table are that (i) the intermediaries' spread is 3 per cent on conventional debt and 4 per cent on indexed debt, (ii) ITD's offer exactly the same after tax return as conventional deposits to the depositor whose marginal tax bracket is shown in the upper row, and (iii) everyone is expecting the rate of inflation shown in the left-hand column. The method of calculation is described in the Appendix.

Table 2(a)
Difference between expected cost of ITL and conventional loan to a borrower without deductibility

$$(= (\frac{t}{1-t})\pi - 1\%)$$

	Tax rate of marginal depositor (t)		
	30%	40%	50%
Expected inflation (π)			
8%	3.4%	5.3%	7.0%
10%	4.3%	6.7%	9.0%
12%	5.1%	8.0%	11.0%

Table 2(b)
Difference between expected cost of ITL and conventional loan to a borrower with deductibility in a 25 per cent tax bracket

$$(= (\frac{t-25\%}{1-t})\pi - 0.75\%)$$

	Tax rate of marginal depositor (t)		
	30%	40%	50%
Expected inflation (π)			
8%	-0.18%	1.25%	3.25%
10%	-0.04%	1.75%	4.25%
12%	0.11%	2.25%	5.25%

These tables suggest that the gain to the borrower without effective deductibility will be very large, especially if the ITD's do not offer an expected-return advantage to depositors below the 50 per cent tax bracket. They also suggest that the borrower with deductibility at 25 per cent will gain as well, but by at most half as much as the borrower without deductibility. Furthermore, if the program grows to the point where depositors in a 30 per cent tax bracket are drawn in by the tax advantage, conventional loans will have a lower expected cost to the borrower with deductibility. It must be remembered, however, that borrowers might prefer ITL's even at a higher expected cost, because of their risk and liquidity advantages.

Despite these advantages, the volume of ITL's is likely to be quite small at first, because of the eligibility requirements and the likely desire of intermediaries to proceed cautiously. This second factor may keep the volume somewhat lower than $10-12 billion in the first year, if the eligibility restrictions remain in place. Intermediaries may keep the spreads high, narrow the field of eligible borrowers by strict credit tests, and discourage some eligible borrowers with stringent terms.

Thus it seems likely that a negative real interest rate will prevail on ITD's, at least at first. If negative ITD interest is tax-deductible for the depositor (as it ought to be, since it will undoubtedly be taxable income to the intermediary), then a rate as low as minus 4 per cent seems possible.

As the plan grows and intermediaries try to attract more depositors, the rate can be expected to increase. An important factor that might limit the rise is the incentive for back-door borrowing with deductible nominal interest for the purpose of acquiring ITD's. Indeed, this incentive is even greater than the incentive to acquire RSIP's in the same way, since the real rate of return on an RSIP is far from guaranteed. Even after several years of operation, the ITD scheme will probably not draw enough funds out of conventional markets to force the real rate much above zero. If house prices are used to index ITD's, a higher rate will probably prevail, as this will undoubtedly make them less attractive as a hedge against inflation. It will, however, make them more attractive to people saving for the down payment on a house.

One important factor that will determine the size of the ITD-ITL market is how the term "new" is interpreted. If a businessman takes out an ITL to acquire a newly produced asset and then wishes to sell it, is it still regarded as "new"? Likewise, does a house financed with an ITL still count as "new" when up for resale? If not, the growth in demand will be reduced by the resale of such assets. Furthermore, such an interpretation would surely limit the advantages to borrowers under the plan, who would realize that in the event of resale their assets would have to compete against similar "new" assets. Not only would this discourage borrowers, it would also increase the default risks to financial intermediaries; this would cause further increases in the spread and the stringency of loan terms, thus further restricting demand for such loans. In order to give the plan a fair chance of success, it seems that "new" would have to be defined as "produced after the date of the June budget". This means that eventually almost the entire stock of outstanding mortgages and a large fraction of small business loans could consist of ITL's.

EFFECTS ON OTHER MARKETS

If the preceding analysis is right in suggesting that volume on the ITD-ITL market will be quite limited in the first year or two, then the effects of the White Paper program on other markets will also be quite limited at first. As the plan grows in size the effects may become significant, although they may be modified by future tax changes and more indexation.

Conventional Instruments

In the market for conventional term deposits, savings deposits, bonds, GIC's, debentures, preferred shares, Canada Savings Bonds, commercial paper, and other assets for which lenders might substitute ITD's, interest rates might be expected to rise as funds are drawn away from these assets and into the ITD market. However, the volume of conventional assets will be so large relative to the likely volume of ITD's, especially in the first few years, that the proportion of funds drawn off will probably be quite small. This is less true of items like conventional term deposits, which might be regarded as very close substitutes for ITD's than it is for, say, commercial paper; but, as the program grows, the desire by intermediaries to replace their conventional deposits with ITD's will moderate any increase in the conventional rate. Substantial upward pressure would be exerted in more distant markets only if there were a dramatic increase in the volume of new capital and housing investment, financed through ITL's. The resulting rise in the general level of interest rates would be limited to whatever was required to finance the increased level of aggregate expenditures. In other words, the increased borrowing cost to issuers of conventional instruments would be a result not of the new plan but of the revival of activity in the investment goods and construction industries. Such a rise in borrowing costs would be an inevitable effect of pulling out of the current recession, with or without indexation.

Another reason why the general level of interest rates is unlikely to be much affected by the ITD market has to do with the current policy of the Bank of Canada. If the Bank is serious about its attempt to get the money supply (M1) back into the target range, then it will manipulate the general level of interest rates so as to achieve that purpose, and in the absence of any sharp change in policy this is likely to be the predominant influence over interest rates in the next year or two. Thus the level of interest rates will increase only if the demand for money increases, requiring higher rates to keep M1 inside the range, or if substantial downward pressure is exerted on the Canadian dollar as a result of the policy and the Bank of Canada reacts to this pressure by raising interest rates and allowing M1 to fall even further below this range. The first of these alternatives is unlikely, especially in view of the sizeable gap to be made up before M1 rises even to the lower limit of the range, except to the extent that money demand rises as a result of increased aggregate demand, as discussed above. The possibility of a change in the exchange rate as a result of the White Paper plan will be discussed later in the present section.

Housing

The effects of the White Paper proposal on the housing market could be quite substantial once the program grows to a significant size. As already mentioned, the new inflation shelters provided by RSIP's and ITD's should have the eventual effect of reducing the relative price of houses in general. This effect should be most pronounced on large single-family dwellings, whose owners are typically in the higher tax brackets and to whom the alternative inflation shelters will be the most attractive.

But the most important effect on the housing market may come as a result of segmenting the market between new and old houses. Once the scheme starts developing, sellers of old houses will be at a great disadvantage relative to those selling new ones. For as Table 2(a) indicates, the ITL rate can be expected to fall far below conventional mortgage rates. If we add to this the reduced risk and enhanced liquidity features of ITL's, this disadvantage could be enormous.

The question naturally arises how anyone is going to sell an existing house when a new one is for sale with a huge mortgage advantage. The obvious answer is that he won't, unless the price of the new house rises dramatically to reflect its advantage or the price of the old house falls. If the current slack in the construction industry still exists when the ITL scheme is introduced, it seems unlikely that new housing prices will rise to any great extent. Instead it is likely that existing housing prices will fall. Under conservative assumptions, it would take as much as a 30 per cent discount to sell an existing house, over and above whatever discount already exists. New home buyers and developers will receive a great benefit at the expense of existing homeowners, especially those about to sell large houses.

The ITL scheme is likely to have an adverse effect on the market for rental accommodation. The mortgage advantage might persuade many renters to buy new houses, thus depressing the market for apartment buildings. Furthermore, depending upon the exact design of the proposal, newly constructed buildings may sell at a premium if they can be converted into condominiums and sold to people who qualify for the lower mortgage rates.

Capital Equipment

The market for capital equipment used by small businesses, fishermen, and farmers is likely to be similarly affected by the ITL proposal in its present form, with new capital goods rising in value relative to old. People starting in business, and those with enough cash flow to be planning new capital investment, will benefit at the expense of those about to sell their businesses (especially those about to retire) and others whose current financial situation prevents them from contemplating any new investment. Small businesses will be further affected by the RSIP proposal which may limit their ability to raise equity capital because of the restriction of RSIP investment to publicly traded corporations.

Stock Market

Prices of common shares in publicly traded Canadian corporations will be bid up by the RSIP proposal at the expense particularly of preferred shares and shares of privately held corporations. To the extent that any corporation holds marketable capital goods that compete against new ones eligible for ITL's, its shares may tend to be depressed. However, large holdings of equipment that can be traded internationally will not be much affected by this.

Foreign Exchange

The new programs will probably not adversely affect the value of the

Canadian dollar. To the extent that the programs nudge domestic interest rates upward, extra capital may flow in, sending the exchange rate up. But our analysis of interest-rate effects suggests that any such increase is likely to be fairly small.

A substantial effect is possible on the composition of the Canadian capital account. The RSIP program, because it is restricted to Canadian securities, will induce Canadians to sell foreign securities and increase their net international indebtedness in order to buy Canadian equity. An increase in Canadian ownership is likely to result, and foreigners will end up holding more Canadian debt but less Canadian equity.

Because of the money illusion in our accounting systems, this could result in an illusory deterioration of the current account of our balance of payments. Dividends sent abroad will be replaced in this account by a much larger flow of nominal interest payments, which will make the deficit rise. In fact, as we have already discussed, a large portion of those interest payments represents the repayment of real principal, and hence should not really be counted into the debt-service part of the current account. To the extent that people are misled by this illusory deficit, downward pressure might be exerted on our exchange rate.

Another disturbing possibility is that the above-mentioned retroactive capital losses suffered by owners of existing capital equipment might be taken by international investors as another sign that Canadian tax laws are unpredictable and unfair. If this caused further disinvestment in Canadian securities, the dollar could fall.

Similarly, the increased federal deficit resulting from the tax loss caused by the new programs might produce downward pressure on the dollar, by raising fears among foreign investors of increased inflation and hence of future depreciation in the Canadian dollar; also by further eroding foreign investors' confidence in the ability of our government to conduct sound economic policies.

Despite these theoretical possibilities, the effect on the Canadian dollar is likely to be very small. Money illusion in the current account will be a big problem only if the RSIP program grows very large. Even then, the move to indexation ought to help people to think in indexed terms and to see more clearly through this illusory effect. Capital losses are not likely to affect the market for large holdings of internationally tradeable capital equipment. The Finance Minister's deficit forecast already includes the budgetary effects of the proposals, so that their psychological effects, if any, have already been realized. Furthermore, as the program grows, measures can be adopted to minimize the tax loss and the retroactive capital losses.

AGGREGATE DEMAND

In the short run, the program's effect on aggregate demand is likely to be greatest in the area of expenditure for residential construction and new investment goods by eligible ITL borrowers responding to the various advantages of indexed borrowing. New investment may also be stimulated by the RSIP proposal, which will lower the cost to some firms of raising equity capital.

Offsetting this effect on investment demand will be the deterioration in the financial position of firms adversely affected by retroactive capital losses on old capital goods and firms too small to qualify for RSIP investment. This effect could be augmented by the general deterioration of confidence in Canadian tax laws as a result of the retroactive losses (an issue on which Canadian public opinion has recently become quite sensitive) and by fears of inflation heightened by the rising federal deficit.

The demand for consumption goods is likely to be stimulated by the extra liquidity provided to new home buyers, as well as by the increase in disposable incomes resulting from the tax reduction. But the reduced wealth and liquidity of homeowners suffering retroactive capital losses may more than offset this.

Net exports are likely to remain unaffected unless, because of the factors discussed earlier, there is substantial downward pressure on the Canadian dollar. In that event, net export demand is likely to increase. But the increase in interest rates with which the Bank of Canada would be likely to react would probably more than offset this.

On balance, the effect on aggregate demand is very hard to predict without further quantitative analysis. A lot depends upon the unpredictable effects of increased deficits and capital losses. In any event, it would be a mistake to place too great a weight on this aspect of the proposal. The proposal has the prospect of increasing the efficiency of the Canadian economy and lessening the inequitable burden of distortions caused by inflation. This long-run gain should not be overshadowed by short-run considerations of aggregate demand. It will undoubtedly take some time before the details of the proposal can be worked out to the point where they can properly be implemented. By then the macroeconomic situation may have changed drastically. In the meantime, there are plenty of short-run measures that could be targeted at sectors experiencing high unemployment.

CAPITAL ACCUMULATION, EFFICIENCY, AND DISTRIBUTION

Capital Accumulation

The long-run effect of the White Paper proposals on total capital accumulation is hard to predict. By reducing the gap between the real interest rate paid by small borrowers and that received by high tax-bracket savers, the proposals ought, in theory, to produce more saving and investment. But the effects of these depend crucially upon the elasticity of saving with respect to interest rates, a number about which considerable uncertainty exists. Capital accumulation may also be stimulated by the reduced cost of raising equity capital from RSIP's, and by any revival of the long-term bond market that might occur as a result of the spread of indexation.

Efficiency

Efficiency gains and losses will result because the proposals will (a) remove some money illusion from the tax laws, (b) encourage indexed debt, and (c) foster more realistic attitudes toward measuring incomes and costs.

(a) The RSIP's and ITD's will generate efficiency gains by reducing the artificial stimulus, provided by current tax laws, to invest in houses, consumer durables, and tax shelters. This will be offset, or perhaps even reversed, by the tax advantage that will further stimulate the demand for houses. But the more the ITD program grows, the less this advantage will be. (Recall from Tables 2(a) and 2(b) how the advantage falls whe depositors from lower tax brackets are drawn in.)

Eligibility restrictions on ITL's will introduce an efficiency loss by artificially encouraging investment in eligible sectors at the expense of non-eligible sectors. But the RSIP advantage will partially offset this by encouraging investment in the corporate sector. A broadening of ITL-eligibility could reduce or eliminate the remaining distortions by making fewer sectors disadvantaged and by reducing the advantage of ITL-lending as the program expands.

Tying the tax advantage of the ITD-ITL program to indexation offers an over-incentive to indexation that will eventually generate an efficiency loss. But the over-incentive will probably be needed at the start in order to overcome the artificial obstacles to indexation spelled out in the first section of this paper. After these obstacles have been overcome, the over-incentive to indexation may become a serious problem unless the tax saving is spread to conventional instruments.

(b) Indexation produces efficiency gains by reducing risk and encouraging more rational allocation of liquidity. The market for debt is one in which a lender exchanges some present purchasing power with a borrower, perhaps through an intermediary, in exchange for the future purchasing power represented by the borrower's repayment of principal and interest. With conventional debt, such exchanges are inhibited because in order to carry them out both parties must also agree to a dangerous gamble. The borrower wins the gamble if inflation turns out to be more than expected. The lender wins if it is less. With indexed debt, the market can be opened up to those who prefer not to gamble. A gain accrues on both sides of the market, since the participants can now trade on the same expected terms as before but without the unnecessary risk.

The increased liquidity of borrowers with indexed debt is offset to some extent by the decreased liquidity of lenders, especially if the real rate is close to zero and the loan is for a long term. However, an efficiency gain will result if the borrower attaches a higher price to liquidity than the lender. Indeed this is likely to be the case. Tax considerations aside, indexed debt is likely to attract lenders with abundant liquidity and borrowers with deficient liquidity. The ability of such people to trade liquidity will be greatly enhanced by indexation. For with conventional debt, the borrower's liquidity is further reduced, and the lender's liquidity is further enhanced, by the large nominal interest payments required on the debt.

(c) Efficiency gains will accrue to all if markets lose their present susceptibility to the illusory effects of inflation on government deficits and international payments deficits that can have the important macroeconomic results referred to in previous sections. A further gain will accrue if people become better able to interpret corporate balance sheets and income statements without being misled by the effects of inflation on conventional accounting systems. More rational planning and decision making would then be possible.

Widespread gains will accrue from the alleviation of financial distress artificially created by conventional ways of thinking that are no longer appropriate in a world of inflation. For example, consider a man with an annual income of $40,000 and a conventional $50,000 mortgage at 20 per cent on a $120,000 house. His monthly mortgage "interest" is one-quarter of his income. He has $70,000 equity in his house, yet he could be in jeopardy of losing it, especially if taxes and automatic payments to life insurance, pension, and other plans also take up a sizeable portion of his income. But if he had a fully indexed mortgage at 8 per cent real, he would be in no such jeopardy. If people expected about 12 per cent inflation, the mortgage lender would get the same expected real interest with less risk. Yet, thanks to conventional thinking, there is no one in Canada who would give him such a mortgage. Indeed, he might not want it himself, once it had been pointed out to him that he could expect to become more in debt every year, and that the value of his house and his income could not be counted on to grow at the same rate as his mortgage obligation.

Consider what would happen if people expected no inflation and the rate on conventional mortgages were 8 per cent, with everything else the same. With 70 per cent equity and monthly interest payments of 10 per cent of his income, our house-owner would, by conventional reasoning, be considered a most creditworthy borrower. There would be some risk that housing prices would fall, but it would take a 50 per cent fall (to $60,000) before his mortgage amounted to as much as 83 per cent of the value of his house, a fraction which would have been considered fairly secure as recently as ten years ago. There would also be some risk that the man's income would fall. But it would take a drop of 60 per cent, from $40,000 to $16,000, before his interest payment of $4,000 reached the dire-straits level of 25 per cent of his income. If the man was a normally responsible citizen, if his job was reasonably secure, and particularly if it looked as if his career would follow the upward progression that would be normal even in the absence of inflation, the possibility that he might default would worry only the most paranoid of bankers.

The irony is that the possibility of default in this situation is scarcely any smaller than it would be in the 12 per cent world - if that world were willing to provide an 8 per cent fully indexed mortgage. Even in the 12 per cent world it would take a 50 per cent fall in the value of the house relative to the general level of prices - that is, a 50 per cent decline in the real value of the house - for the mortgage to reach 83 per cent of the value of the house. And it would take a 60 per cent fall in the owner's real income before the monthly payments reached 25 per cent of his income. Is there any reason to think that such real changes are any more likely in the 12 per cent world than in the 0 per cent world?

One reason that comes to mind is the possibility that relative prices exhibit more variability the higher the rate of inflation. There does appear to be some empirical support for this hypothesis, and it is one that has to be taken into account. Still, it is hard to believe that this factor in itself would be enough to turn the possibility of a more than 50 per cent drop in the relative price of housing from a remote possibility into a clear and present danger.

Another reason is the possibility that 12 per cent inflation may revert to 0 per cent, in which case the value of housing as an inflation hedge may be reduced, causing the real price of houses to decline. A drop of such magnitude seems quite unlikely in the near future, and in any case it would probably take a much more dramatic drop for real housing prices to fall by 50 per cent. Perhaps some day inflation will be eliminated, but by that time the owner will have acquired even more equity in his house, leaving him still in a relatively comfortable position.

Still, there is a risk in that an unexpected decline in the rate of inflation could induce foreclosures in less creditworthy situations than the one in this example. But the same would be true in a 0 per cent world, in which there would be some risk of deflation. Indeed, this risk would be greater in the 0 per cent world, because the mortgage in that example is not indexed. An unexpected deflation that lowered the real value of the house would also raise the real value of the mortgage, causing the margin of safety to fall even more.

This shows the drastic cost that inflation imposes on us because of outmoded ways of thinking. The man in the 0 per cent world would enjoy his house, be able to plan responsibly for his retirement, and enjoy the respect of his friends, neighbours, and banker. So could the man in the 12 per cent world if we had fully indexed debt. The man in the 12 per cent world with our present money illusion would be forced to give up his house. Insult would be added to this injury by those who observed that he had foolishly overextended himself.

The irony of this situation is heightened when one takes into account the various ways, described earlier, in which mortgage lending intermediaries could protect themselves at little or no cost against default risk on indexed loans.

It should also be realized that the efficiency gains of moving to indexation would persist even if we were somehow to revert to a 0 per cent world. Many of these gains arise from the uncertainty of inflation (or deflation), which would still exist in a 0 per cent world. Suppose, for example, that North American farmers in the 1930s, during the Great Depression, had had indexed mortgages. Who can doubt that their financial plight would have been greatly relieved, and the severity of the Great Depression reduced, if their mortgages had fallen in pace with the 25 per cent drop in prices generally from 1930 to 1933, or with the much greater drop in farm prices? True, this might have reduced the gain to lenders, who would have suffered large negative inflation adjustments to their mortgages and deposits. But in terms of real purchasing power the lenders would have gotten what they contracted for. Most lenders lost greatly in any event, for instead of receiving the whopping real interest rate on these assets they got only what was left after the distress bankruptcy sales, minus payments to the lawyers, accountants, auctioneers, and bodyguards.

Three additional effects on efficiency would follow specifically from the RSIP proposal. First, by allowing corporations to replace some short-term debt by new equity capital on more favourable terms, the RSIP scheme would permit them to give greater weight to real, long-run factors in their production and investment decisions, and less to the artificial short-run considerations imposed upon them by our system of conventional debt.

A second source of efficiency gains from RSIP's may result from the accrual basis of taxation. At present there is a great incentive for shareholders to hold onto shares that have risen in value and sell those that have fallen, in order to minimize the taxable realization of capital gains. This tax distortion would be reduced. Not only would the efficiency of peoples' portfolios be improved, but to some extent the variability of stock prices might be reduced. A moderate decline in value of a share would no longer give people this added incentive to sell it, thus increasing the size of the decline. Balanced against this would be the extra liquidity cost to RSIP holders who might be forced to liquidate a large part of their holdings during boom years in order to pay their capital gains tax.

Third, the RSIP program may result in too large a fraction of Canadian shares in the portfolios of Canadians, who would be induced to sell foreign shares in order to take advantage of the plan. However, to the extent that increased Canadian ownership is a valued objective of policy this might actually be seen as a gain.

Who Loses?

This is not to suggest that there will be no losers. If eligibility requirements on ITL's are not relaxed, there will be easily identifiable groups that will lose enormously. If they are relaxed and the program expands, there will be large losses in tax revenue, leading to an overall increase in other taxes or an increase in debt that future taxpayers will inherit. As with any program, there will undoubtedly be some who benefit relatively little but pay more than their share of the increased taxes. But if eligibility for ITL's is greatly relaxed and more kinds of assets are allowed to be included in RSIP's, it seems to me that the program will be reasonably well designed to minimize the damage to any easily identifiable group.

SOME POTENTIAL PROBLEMS AND SUGGESTIONS FOR DEALING WITH THEM

Capital Losses Resulting from Eligibility Requirements

The biggest and most obvious problem revealed by the preceding analysis is the possibility that once the program gets going it will impose huge capital losses on owners of existing houses, capital equipment, some equity, and especially apartment buildings. This is particularly serious at a time when Canadian public opinion is highly sensitive to the retroactive losses imposed by changes in government policy. To the extent that the program raised further doubts about the fairness and predictability of Canadian laws, it would further erode confidence in all sectors of the economy. Aside from this, the losses attributable to the program would dampen aggregate demand, cause inequitable redistribution of wealth, introduce further tax distortions, and aggravate financial problems in almost all sectors. In doing so they would discredit the move to indexation and harden the opinions of those most firmly in the grip of conventional thinking.

These problems would be avoided if the restrictions on eligibility for ITL's were relaxed, or even eliminated. In my judgement, the gains from such a modification of the plan would be enormous. Not only would an extension of eligibility avoid the above-mentioned problems, but it would also give much wider scope to the efficiency gains of the program. Furthermore, it would give the program a fair chance to work. Financial intermediaries may limit their ITL lending at first to all but the most creditworthy of borrowers - those with substantial equity and no cash flow problem. But the wider the field intermediaries can choose from, the greater the program's chance of success. Given the proposal as it stands, either the program may not get going, or else intermediaries may be persuaded by the huge tax break to get into a business made artificially risky.

There are three potential difficulties associated with removing eligibility restrictions. The first is that the resulting increase in demand for ITL's would raise the rate of interest on them, thereby dampening their stimulative effect on the demand for new housing and investment goods. However, this negative effect on aggregrate demand might very well be less than the detrimental effect on aggregate demand of the capital losses and attendant problems associated with restricted eligibility. In any case, as I have argued, it would be a mistake to place great weight on the short-run aggregate demand effects of the proposals.

The second potential difficulty is that removing the eligibility restrictions might open up the market to such an extent that the increase in interest rates on conventional securities, which I have argued would be minimal under the present scheme, might now be significant. However, precisely the opposite effect is more likely to result. Each time a borrower was allowed to leave the conventional market and compete for the tax break in the indexed market, a shortfall of supply would be temporarily created in the conventional market, along with an excess supply in the indexed market. The most likely market adjustment would be a rise in indexed rates and a fall in conventional rates. Those left in the conventional market would benefit from the departure of a competitor. The rise in indexed rates would draw lenders out of the conventional market; this would moderate but not eliminate the gain to the remaining conventional borrowers.

The third potential problem is the increased loss of tax revenue that would follow from any extension of eligibility. With massive conversion of conventional to indexed debt by borrowers in a non-deductible status, and of conventional to indexed assets by lenders in a high tax bracket, the tax revenues from illusory interest income would be lost, with no offset in reduced deductibility. Since this problem also applies to the plan as it stands, although to a lesser degree, I shall defer discussion of it to the next sub-section.

The Budget Deficit of the Public Sector

I see no reason to doubt the White Paper's estimates of the increase in the federal and provincial deficits resulting from reduced taxation of illusory capital gains and interest income. Relaxing eligiblity would magnify these increases. There are several reasons, however, why not much weight should be attached to this problem.

First, a properly designed income tax should not be taxing non-existent income. Increases in the rate of taxation on real interest and real capital gains would make more sense than taxing both real and illusory gains at a lower rate. Perhaps, in view of the present tax advantage to homeowning, which would be increased (or less than fully eliminated) by the proposal, it would make sense to substitute other taxes aimed at homeowners, such as taxation of imputed rental income or real capital gains. If both of these taxes were instituted, then tax-deductibility of real mortgage expenditure would also make sense. In short, once the program has grown to the point where the revenue cost becomes appreciable, other, more appropriate taxes could be substituted or increased. Moreover, there is no shortage of inefficient expenditures that could be reduced.

Second, there are various ways in which the tax loss could be limited, without raising other tax rates, by restricting the demand for ITD's.

This could perhaps be done by placing a ceiling on the amount of ITD's that any individual could own. The White Paper argues that this would reduce the gap between rates of interest on indexed and conventional debt, thus reducing the advantage to the targeted borrowers. But if eligibility requirements are relaxed, as they should be, there will be no targeted borrowers. Another way of saving tax revenues would be to allow ITD's to be indexed to housing prices and industry selling prices. This would limit the demand for ITD's by making them less of a hedge against inflation. It would also raise the real interest rate, which would limit the tax loss. Indexing to housing prices would also reduce the default risk on mortgages and encourage people to save for larger down payments on houses.

Third, the problem of government deficits is not as great as is commonly supposed. To a large extent it is exaggerated by the same sort of money illusion that exaggerates our current acount deficit. Of the $19.6 billion federal deficit forecast by the Minister of Finance, somewhere between $10 and $15 billion consists of an illusory interest cost on the outstanding federal government debt, which in real terms is just repayment of principal. At least another $8 or $10 billion can be attributed to lost tax revenue and increased transfer payments resulting from the current recession. Thus, if the projected deficits are properly adjusted for inflation, it may be said that the federal government is running a substantial full-employment surplus. The same would hold true if all levels of government were taken into account.

This is not to argue that an increased federal deficit, illusory or not, would be of no consequence. To the extent that it raised fears of future inflation it would exert upward pressure on the money rate of interest. This pressure would probably be resisted by the Bank of Canada, which would be thereby induced into allowing additional increases in the money supply. The main effect of these increases would be to expand aggregate demand by temporarily reducing the expected real level of interest rates.

An increased deficit could also further erode confidence in federal policy. In my opinion the possibility of this happening to any serious extent is not very great. By the time the plan grows to a significant size the current recession may be over, bringing a great reduction in the size of the measured deficit (although not in the full-employment deficit). Also, to the extent that people begin to think in indexed terms as the program grows, the money illusion underlying such fears will diminish. As I shall argue presently, this learning process could be greatly aided by issuing indexed government bonds, of which only the real interest cost would appear as a government budgetary item.

It should also be borne in mind that the increased deficit resulting from this proposal would reflect the fact, too easily forgotten, that not everyone gains from a change in government policy, no matter by how much the aggregate benefits exceed the aggregate costs.

The Choice of Index

One reason why indexation has not arisen under private initiative is that available measures of inflation are all imperfect. The most popular measure, the Consumer Price Index, suffers from many problems. In particular, because it measures the price of a fixed basket of goods, it tends to overstate inflation. For as the general level of prices rises, relative prices also change, and households find it advantageous to reallocate their expenditures accordingly, buying more of those items whose relative prices have fallen and less of those whose prices have risen. The CPI shows how much the cost of living would rise for a family that made no such substitutions. Moreover, it overlooks reductions in the cost of living that result from improvements in the quality of goods and from entirely new goods that do not enter the old fixed basket. The housing component of the CPI is widely agreed to be unreliable. Similar problems exist with other indices. Thus one of the reasons for what appears to be money illusion is the fact that in reality money can be measured accurately, but inflation cannot.

This problem will remain under any scheme of indexation, and it will make the scheme less advantageous than it would otherwise have been. But it raises two items of immediate concern.

First, as we have seen, different people may prefer to index to different price indices. The Canadian financial system is innovative and adaptable enough to satisfy many of these different preferences, given the opportunity. This would mean a far greater efficiency gain than there will be if indexation is restricted to a unique price index. Thus it is important that the choice of index used in designing indexed debt instruments be left to the marketplace, and not imposed by legislation. However, greater care will have to be taken in the choice of an index for the purpose of adjusting taxes. For example, consider an ITD that is indexed to housing prices. In a year of 8 per cent overall inflation, if housing prices rise by 15 per cent, the ITD-holder will receive a 15 per cent inflation adjustment on his deposit. If this adjustment were allowed to be wholly exempted from income tax, it would include an untaxed real capital gain of 7 per cent. In order to avoid such distortions, a broad measure of overall inflation should be chosen for taxation purposes, and people should be allowed to exempt the indexed adjustment on an ITD only up to the level of the broader index. Perhaps the CPI could be used for household loans and the GNE deflator for business loans. The issue certainly merits further study.

The second concern raised by the choice of index is that the process of revising and computing the index may become highly politicized. The CPI requires periodic revisions to change the fixed basket, to include new products, and to incorporate better techniques of measurement. Right now this can be done by experts within Statistics Canada who are motivated mainly by a concern for accuracy. Once indexation becomes widespread, any revision that lowers the CPI will be resisted by lenders whose interest income would automatically be reduced, while any revision that increases the CPI will meet with protests from borrowers. This problem is particularly important when it comes to the problematical housing component of the CPI. Once the ITD-ITL program gets going, it will make sense to revise this component to reflect the change in housing costs.

An Indexation Commission

One possible way of reducing the divisiveness that could arise over the CPI would be to appoint an Indexation Commission of expert economists, statisticians, and accountants who, with the assistance of the technical experts in Statistics Canada, could make recommendations to Statistics Canada that would be binding unless overriden by a vote in Parliament. Such an Indexation Commission could also be instituted to aid in finding ways to overcome the obstacles to comprehensive reform mentioned in the White Paper, to educate the public about indexation (including how to adjust corporate balance sheets and income statements for inflation), to prepare inflation-adjusted balance-of-payments accounts and government income-expenditure accounts, and to provide expert staff to assist future committees involved in the process of consultation on proposed changes in tax laws. Once the current proposal catches on with the public, the demand for more indexation may spread very rapidly; anything that can be done to facilitate this move will help not only in achieving the long-run gains but also in minimizing the inequities and distortions that might present themselves during the transition.

Indexed Government Debt

One important move that the federal government could make to encourage the spread of indexation would be to begin issuing indexed debt, including Canada Savings Bonds, that would be treated for tax purposes the same as ITD's. This would help spread the advantages of risk-reduction through indexation to more members of the economy. In particular, advantages might be conferred on the low income, low tax bracket, small savers who would probably not benefit from the ITD plan. This aspect could be ensured by placing severe restrictions on the amount of indexed CSB's that could be held by any one individual.

This scheme might bring some tax loss to the federal government, but this loss would be moderated by making the real interest on indexed CSB's ineligible for the $1,000 interest-income deduction, and by using limits to aim the issue at low income, low tax bracket savers who would not in any event have been paying much tax on their CSB interest.

For two reasons, indexed CSB's could also provide great relief to any budgetary problems experienced by the federal government. First, because they are indexed, they could probably be sold at a much smaller real interest rate than conventional CSB's. This in itself would probably much more than offset any tax loss that might arise from their issuance, and go a long way toward covering the tax cost of the present program.

Second, it would be natural to include as a budgetary item only the real component of the interest cost. Thus a $10 billion issue at 3 per cent real would create an annual debt service charge of $300 million, which would make the measured deficit almost $1.3 billion less than an equal-sized conventional issue at 16 per cent nominal (almost, because of the small tax loss that would occur). One reason commonly offered for not making this inflation adjustment with conventional government debt is that the unadjusted deficit better represents the amount of new money that the government must raise. This reason might no longer be valid with indexed debt, depending upon how it was designed. If it were fully indexed, with all of the annual inflation adjustment added onto the principal, then the annual cash requirement for servicing that hypothetical $10 billion issue of indexed CSBs would indeed be the adjusted figure of $300 million. If inflation turned out to be 13 per cent, the extra $1.3 billion would have to be added to the principal of those bonds. But no new bonds would have to be sold, except to the extent that bond holders cashed in some of that $1.3 billion. Contrast this with the conventional bonds on which the government must find the cash to pay out $1.6 billion and then, to stay in the same real situation, turn around and borrow $1.3 billion of it back!

Thus the spread of indexation into federal government debt may be one means of overcoming the money illusion that currently underlies so many of the government's budgetary problems. Nor is there any reason to limit this advantage to the federal government: provincial governments too should be allowed to participate in the indexed bond market. Again there would be a tax loss, but for all the reasons mentioned earlier this loss should not be taken too seriously. On the other hand, indexation could remove a large part of the money illusion in provincial deficits.

One of the likely gains from such widespread indexation would be the increased opportunity for pension funds and other financial intermediaries to acquire indexed assets and hence start offering indexed pensions and annuities.

Allowing provincial governments to issue indexed debt should benefit even those borrowers still unable to leave the conventional market. Again, as more borrowers leave that market, the cost to the borrowers who remain will be reduced.

Increasing Government Involvement

There is a danger that the federal government could use the White Paper proposal to gain more direct control over the allocation of resources and the conduct of business in Canada. By controlling the eligibility requirements for low-interest ITL's, the government could channel funds into whatever sector or region it thought advisable. By telling financial intermediaries exactly how ITD's and ITL's must be designed, it could exert a lot of control over the evolution of financial markets.

For the reasons outlined in the first section of this paper, government action is probably appropriate in the area of indexation. But it is important that intervention be limited to giving the initial tax incentive to get the ITL-ITD plan going and to clarifying the way in which indexed instruments will be treated for tax purposes. In particular, as I have argued, eligibility requirements that limit indexed borrowing are inadvisable as a general rule. Any attempt to use such requirements as an instrument of selective credit control that could be redirected from time to time would further undermine the program by raising fears of even more retroactive capital losses.

Financial intermediaries ought to be given the greatest possible latitude in the design of ITD's and ITL's, so as to take the greatest possible advantage of the Canadian financial system's flexibility and capacity for innovation . Any restriction as to what index is allowable, how payments should be structured, what down payments should be required, how long the amortization period should be, etc., will just stifle the program and reduce its chance for success by possibly ruling out a good design that some innovative financier might hit upon. This caveat applies to such things as the required minimum term of one year proposed in the White Paper. The reporting lag in price indices will impose some minimum term in any event.

Another restriction that ought to be reconsidered on these grounds is the requirement that every dollar of an intermediary's ITD's be backed by a dollar of ITL's. There is every reason to think that intermediaries will attempt this in any event, since a bank that issued ITD's backed by conventional assets would expose itself to an inflation risk on the ITD. The bank would also be liable to full taxation on the nominal interest income of the ITL but not be able to deduct the inflation component of the ITD. Similarily, if it issued ITL's but not ITD's it would be exposing itself to an inflation risk, though in this case there might be some tax-saving. To discourage this sort of tax avoidance, it might be prudent to rule that every ITL without a corresponding ITD will be deemed to be backed by a conventional deposit on which only the real interest is deductible.

The only restriction should be that the instrument be truly indexed; that is, that the principal amount owing be adjusted at least every year, in exact proportion to the change in a pre-specified price index, which could be defined as any of the price indices published by Statistics Canada or any weighted average of any subcomponents thereof.

It will, of course, be necessary for the CMHC to specify standards that must be met for mortgage loans to be insured. But these should be set as loosely as possible at first to ensure maximum flexibility. Just as private intermediaries will take some time before they hit upon satisfactory terms, so should the government.

The Role of Competition

To ensure that the maximum power of the marketplace is brought to bear, eligibility to issue ITD's and make ITL's should be extended as broadly as possible. Banks, life insurance companies, trust and mortgage loan companies, and all other financial intermediaries should be able to participate. Furthermore, there should be no restriction against private indexed lending, provided that borrowers are prevented from deducting the nominal interest costs of holding such indexed assets. The Department of National Revenue, perhaps with the assistance of an Indexation Commission, could issue guidelines on how private individuals could write indexed mortgages and other loans in compliance with the tax laws. By the same token, private RSIP's should be allowed, with some way of registering them to minimize monitoring costs.

One problem that might arise if maximum competition is not allowed is that eligible intermediaries will proceed so cautiously that they will design their ITL's to almost mimic conventional loans, along the lines of the conservative model described earlier. If the ITD-ITL business were restricted to a small group of privileged intermediaries who could count on the others following this almost conventional path, then financial markets might evolve no further towards indexation than this, and a large part of the potential advantages would be lost. But allowing the maximum amount of potential competition would ensure that if the advantages of a more rational indexation scheme are indeed worth the added cost, then someone will be able to profit from this opportunity by bringing the scheme into existence.

Loopholes

The major loophole that showed up in the preceding analysis is the possibility of back-door borrowing to acquire new indexed assets and deduct nominal interest costs. Perhaps this could be avoided with a regulation specifying that any new borrowing to acquire a financial asset in a year when an indexed asset is purchased will be deemed borrowing for the purpose of acquiring the indexed asset, up to the value of that acquisition, and only the real interest cost, up to that point, will be an allowable deduction.

Accrual Taxation of Capital Gains

The accrual basis of RSIP's will probably discourage a lot of buyers. Perhaps the disadvantages of accrual could be minimized by allowing the taxpayer to defer any tax payable on any unrealized RSIP capital gain, while requiring him to pay interest on those deferred taxes at a prespecified real rate. This would avoid the potential problem of having to sell assets in order to pay the tax on them.

Effects on Anti-Inflation Policy

Do indexation and tax reform mean that we have decided to live with inflation rather than continue to fight it? In my opinion, just the opposite is true. Indexation and tax reform will never eliminate the costs of inflation, and hence will never eliminate the political pressure to fight inflation. What they will do is to reduce the enormous political pressure that now resists that fight. For the fight requires tight monetary policy, and that inevitably causes high interest rates to persist for as long as it takes to bring inflation down. Even under a system of indexed debt this would impose a heavy burden on debtors. But under our system of conventional debt this burden is both greater and more widely shared - shared, that is by those who are unemployed as a result of their former employers' financial distress. Furthermore, under our tax system, the burden of high interest rates falls disproportionately upon small businessmen and homeowners, who suffer the greatest rise in after-tax interest costs. The political pressures that now threaten the continuation of the Bank of Canada's anti-inflation policy come mainly from these groups of debtors and unemployed, who rightly complain that inflation is being fought on their backs. By moving toward indexation and tax reform, the current proposals would reduce the burden on these groups and give our anti-inflation policies more time to do their work.

Furthermore, as I have already suggested, indexation is likely to continue to confer important long-run efficiency gains on the Canadian economy even after the fight against inflation has been won.

Summary

- The White Paper proposals offer large potential efficiency gains by reducing inflation-related tax distortions, by giving a tax-incentive to overcome the artificial barriers in the way of indexed debt, and by fostering more realistic, illusion-free attitudes to measuring incomes and costs.

- The efficiency gains of indexation will come about as a result of a more rational allocation of liquidity and the reduction of unnecessary inflation-risk now faced by borrowers and lenders.

- Restrictions on ITL eligibility will confer capital losses on owners of existing houses and other assets, which could have detrimental effects on equity, efficiency, and the state of confidence in the Canadian economy. They also hinder the objective of overcoming the barriers to indexed debt. These restrictions should be loosened considerably.

- The tax cost of the proposals must be seen in the light of

  (a) the fact that government deficits are not really as large as they appear, and

  (b) the fact that government deficits are appropriate during a severe recession.

- If tax costs are nevertheless seen as a problem, they can be reduced by

  (a) raising other, more appropriate taxes and reducing other expenditures,

  (b) placing limits on allowable holdings of ITD's, and

(c) issuing indexed government debt.

- The possible inequities of the proposals can be reduced by allowing even large businesses to qualify for ITL's.

- Serious detrimental consequences in other markets are not likely if the program is broadened.

- Government restrictions on the design of ITL's and ITD's ought to be reduced as much as possible.

- Maximum competition should be allowed, including the issuing of private ITL's and the formation of private RSIP's.

- Canadian ownership will be increased under the RSIP proposal.

- Some attempt should be made to eliminate the possible loophole of back-door borrowing with nominal interest deductibility to acquire ITD's and RSIP's.

- Mortgages indexed to house-price indices, backed by similarly indexed ITD's, ought to

  (a) minimize the risk of default on ITL's,

  (b) limit the tax loss on ITD's, and

  (c) encourage people to save toward larger down payments on houses.

- Serious consideration should be given to establishing an Indexation Commission to help in the transition toward more complete indexation and tax reform, to help educate the public to think in realistic indexed terms, to assist people wanting to issue private ITL's or form private RSIP's, and to insulate the process of revising government price indices against undue political pressure.

- Indexed debt with the tax advantages of ITD's should be issued by all levels of government. This would do much to spread the gains of indexation, pay the tax cost of the present proposal, and eliminate the overstatement of government expenditures resulting from conventional debt.

- Some thought should be given to softening the accrual feature of RSIP's by allowing deferral with an interest charge.

- The move to indexation and tax reform, rather than weakening our resolve to fight inflation, is more likely to make that fight possible by reducing its unfair burden on debtors and unemployed workers.

APPENDIX: THE AFTER-TAX EXPECTED INTEREST ADVANTAGE TO BORROWER OF ITL's OVER CONVENTIONAL LOANS

t' : tax rate at which interest costs are deductible

r_L^i : real interest rate (before tax) on ITL

n_L : nominal interest rate (before tax) on conventional loans

n, r^i, π, t : as defined in text

(A.1) $n_L = n + 0.3$ (intermediary spread)

(A.2) $r_L^i = r^i + 0.4$ (intermediary spread)

(A.3) $r^i = n - (1-t)^{-1}\pi$ (equilibrium condition of marginal lender)

(A.4) $r_L^i(1-t') \equiv p^i$ (real interest cost of ITL)

(A.5) $n_L(1-t') - \pi \equiv p$ (expected real interest cost of conventional loans)

(A.6) $p^i = (r^i+.04)(1-t')$ (A.4 and A.2)

(A.7) $p = (n+.03)(1-t')-\pi$ (A.5 and A.1)

(A.8) $p^i=(n-(1-t)^{-1}\pi+.04)(1-t')$ (A.6 and A.3)

(A.9) $p-p^i = \pi(\frac{t-t'}{1-t})-(.01)(1-t')$ (A.7 minus A.8)

Inflation and the Canadian Economic Tax System

David Forster and John Thompson

INTRODUCTION

The purpose of this paper is to make a preliminary appraisal of the federal White Paper entitled Inflation and the Taxation of Personal Investment Income, which was issued in June 1982. As accountants engaged in tax practice, we will attempt to put the proposals in perspective, point to their structural implications for income tax legislation, and suggest appropriate courses for further action.

INFLATION AND THE CANADIAN TAX SYSTEM

In recent years, inflation has had a pronounced effect on all facets of the Canadian economy. The relevance of traditional income measurement concepts is being questioned not only on the theoretical level but on a practical level as well. The accounting profession is concerned that traditional income measurement based on historical dollars does not provide useful financial information. Many in the income tax field are arguing along the same lines - historical income measurement no longer produces a sound base for income tax.

Tax System Based on Historical Cost

Income taxes in Canada have traditionally been based on historical cost measurement concepts. This has been a reasonable approach, since historical cost has been used in the measurement of income under generally accepted accounting principles. The Carter Commission, which undertook a fundamental review of the Canadian income tax system, did not take issue with the use of historical cost methods in its report in 1966. In the tax reform of 1971, the one measure which may in part have been a rough recognition of the effect of inflation was the taxation of only one-half of capital gains.

However, times have changed, especially in the last decade. Inflation has become very significant, and major adjustments have been made in the tax base and in the tax itself. While proclaimed mainly as incentives, these adjustments have no doubt been influenced in part by the existence of inflation. Examples of these reliefs are accelerated capital cost allowances, investment tax credits, the 3 per cent inventory allowance, and the $1,000 personal investment income deduction. In addition, more encompassing reliefs have been provided in the form of indexation (now capped) of personal income tax exemptions and tax brackets.

Overall, these accelerated deductions and tax credits may have substantially offset the overstatement of historically measured income during inflation. However, with inflation continuing to run at unprecedented levels, it is questionable whether the Canadian tax system is functioning as designed, and whether such ad hoc adjustments are enough. Even if there have been offsets in an overall sense, the incentives have lost their intended effect, and the income tax burden has been shifted among taxpayers so that some are carrying a much greater proportion of that tax burden, and others much less, than was intended.

A fundamental solution to the problem would be to segregate business and investment income into real and inflationary components and to use the former as the basis for income taxation. A removal of the temporary inflation-relief provisions, a modification of incentives, and an adjustment of tax rates could be combined with comprehensive indexation to provide an equitable distribution of the tax burden among taxpayers.

Accounting Profession Moving to Current Cost Accounting

The accounting profession has not found historical cost measurement problems easy to cope with. A number of years ago, the Canadian Institute of Chartered Accounts (CICA) issued an Exposure Draft called "General Price Level Accounting". This Exposure Draft sat in abeyance for some time and was the subject of much criticism from both a practical and a theoretical viewpoint. In December 1979, the CICA issued another Exposure Draft called "Current Cost Accounting". Again, there was considerable response. December 1981 brought still another Exposure Draft, entitled "Reporting on Effects of Changing Prices". We will refer to the methods described in both the latter Exposure Drafts as "current cost accounting", which is a type of current value accounting.

There is a fundamental difference between current cost accounting and general price level accounting. General price level accounting uses as its basis historical dollar amounts and adjusts them to reflect changes in general price levels. Income is thus expressed in constant dollars for each period, but it is important to note that the origin is still historic costs. On the other hand, current cost accounting uses current replacement costs of various assets, reflecting not only changes in general price levels, but also specific market conditions. The mechanics of income measurement are such that only the portion of realized gains financed by creditors is included in the profit and loss statement.

The CICA's view is that measuring income to reflect only the changes in general price level does not provide the information most needed by users of financial statements, since it does not indicate adequately the performance of management and the ability of the business to continue operations. It appears that the CICA will require supplementary current cost reporting in the near future and that general price level accounting as a method of financial reporting will be abandoned for the time being (except in limited disclosure requirements under current cost accounting). It is important to note that this new reporting will be by way of supplementary information only, and will be limited to large public companies.

Current Federal View On Comprehensive Inflation Adjustments

The Federal government's White Paper reviews the distorting effects of inflation on traditional methods of measuring income. It concludes that a tax system which comprehensively adjusts income to eliminate inflationary components is conceptually preferred, but that it "is not feasible at the present time." (White Paper, p. 1) One of the reasons the White Paper gives for not proceeding with a comprehensive indexing system is that the accounting profession itself has not yet settled the issue of how to measure income in times of inflation.

The White Paper also describes some of the main adjustments that a system of comprehensive indexing for tax purposes would require and the difficulties that taxpayers and government would encounter in making them. Inventory and depreciables would be the principal assets whose values would have to be adjusted to agree with the prevailing level of inflation. The system would also have to recognize and assess the real gain arising from paying off debt with inflated dollars (or, alternatively, the portion of interest which represents a compensation for inflation). The difficulties referred to in the White Paper include the following:

- the concepts involved in understanding the new system;
- the burden of administering and of complying with its extensive detail;
- the problem of devising satisfactory methods of dealing with debt;
- the handling of debt arrangements between different entities, particularly separate corporations;
- the transitional arrangements for existing assets and liabilities, and the redistribution of tax liabilities which could occur in the process; and
- the international implications of getting out of line with tax systems in other countries.

Although the White Paper concludes that comprehensive indexing is not viable now, it makes two specific proposals which would at least move in that direction and assist certain groups of taxpayers. These are a proposal for indexing interest on certain financial instruments, and a proposal for indexing a certain type of capital gain. Later in this paper, these proposals will be reviewed, assessed on their own merit, and considered in relation to any long term move to comprehensive indexing.

Experience in Other Countries

As indicated in the White Paper, no industrial country comparable to Canada has adopted a comprehensive system of indexing for tax purposes. A few countries with extreme inflation, such as Chile, do require a complete restatement of balance sheet and income statements for tax purposes. Among countries more closely comparable to Canada, there are some that use indexing in a limited way. The United States has for many years permitted the use of LIFO inventory valuation for income tax purposes, which serves as a hedge against inflation as it affects inventories. Israel distinguishes between the real and inflationary components of capital gains. The United Kingdom has recently introduced the indexing of certain capital gains, but it is interesting to note that as recently as January 1982 it was concluded in a Green Paper in that country that current cost accounting should not be used for tax purposes.

The Difficulties of Comprehensive Indexing

Comprehensive indexing is a term describing the restatement, for tax purposes, of all asset, liability, income, and expense amounts, taking into account the effects of inflation. The goal of comprehensive indexing is to ensure that the tax burden in a given period is unaffected in real terms by the inflation in the period. Comprehensive indexing would thus require the preparation of an annual "tax" balance sheet with adjustment of the values therein for changes in inflation. This would involve a burdensome reporting requirement for all taxpayers - a requirement that could not be met at all unless the conceptual niceties of indexing were turned into workable rules.

Some of these practical modifications would not be difficult to design. For example, the conversion of inventory and depreciable assets to current dollars could be made in a rather simplified but approximately valid way, although with more detail than at present. The most difficult aspect of the comprehensive indexing scheme would be the treatment of long term debt. It would be easy for taxpayers to comprehend and accept the indexing upwards for inflation of assets used in their businesses and the allowance of increased tax deductions for these higher values. However, long term debt should also be indexed and the resultant tax advantage included in the taxpayer's income for each year. Alternatively, a taxpayer's interest deduction should be limited to a "real" interest rate. In fact, under the comprehensive indexing scheme, certain taxpayers could actually be worse off in times of high inflation than under historical measurement concepts, where they are highly leveraged and the tax advantage of holding fixed debt is included directly in income. An alternative approach, to soften this effect, would be to index only the equity-financed portion of a taxpayer's assets. However, this also has obvious difficulties in relating debt to particular assets. Those difficulties become particularly acute where assets and related debt are in different corporate entities, since consolidation is not a feature of the Canadian tax system.

The transition to a comprehensive indexed system would also be very difficult. Decisions would have to be made about the indexing of existing assets and the treatment of all the outstanding unindexed debt. However well this were done, there would still be significant transitional shifts in the tax burden.

Any method of comprehensive indexing for tax purposes would in any event have to be independent of the approach eventually adopted by the Canadian accounting profession. It is inconceivable, for example, that the government would want to exclude from the tax base any portion of the real gains that arise from changes in the relative economic value of various assets independently of inflation. For this and other reasons, it would seem likely that any system of comprehensive indexing adopted for tax purposes would correspond more or less closely to general price level accounting, which is no longer being actively studied by the accounting profession.

Appraisal of Federal Government's Position on Comprehensive Indexing

- The view that comprehensive indexing is not feasible at the present time is valid. It is an exceedingly complex subject which requires further study, especially in respect of the treatment of debt, corporate entities, and transitional arrangements.

- Such a study should proceed separately from developments in the accounting profession and not await final resolution of the matter in financial reporting. Both the concepts and the methods would have to be different in any case.

INDEXED TERM DEPOSIT AND DEBT INSTRUMENTS

The Proposal

The White Paper sets forth a proposal that would permit certain individuals to invest in a new type of term deposit. Only the return on these deposits in excess of inflation would be subject to taxation. The deposits would flow through financial institutions to certain eligible taxpayers as a new type of term loan instrument. Only the real interest on these loans would be deductible (subject to the usual deductibility criteria).

The proposal would limit the purchase of indexed term deposits to individuals resident in Canada. The term deposit would carry a nominal face value and would stipulate a real rate of interest to be paid over its term. Each period (for example, monthly or quarterly), the nominal face value of the term deposit would be adjusted to reflect the movement of the Consumer Price Index in that period. Interest at the specified real rate would be calculated on this indexed principal value. Each year, individuals would be taxed on the real interest income calculated. At the end of the term of the deposit, the individual would be allowed to receive the inflation-adjusted nominal face value of the deposit tax-free as a return of capital. Income reported from the term deposits would not be eligible for the $1,000 investment income deduction and interest on funds borrowed to purchase an indexed term deposit would not be deductible. The elimination of the $1,000 investment income deduction would appear to be logical, as this was an ad hoc measure to adjust income for inflation. However, elimination of deductibility of all interest incurred to purchase indexed term deposits would appear to be somewhat harsh - one would expect that at least the "real" portion of such interest would be deductible.

The financial institutions would have to use the indexed term deposit funds to make indexed term loans to qualified borrowers, defined as buyers of new homes, and small businessmen, farmers, and fishermen who purchase new depreciable property for use in Canada. The tax treatment proposed for indexed term loans basically parallels that proposed for indexed term deposits. An indexed term loan would carry a nominal face value and a specified real interest rate. Periodically, the principal amount of the loan would be adjusted for the change in the Consumer Price Index during that period. Real interest would be calculated on the indexed principal amount and would be deductible by the borrower in the year to the extent permissible under the Income Tax Act. The indexed term loan would also specify the repayment terms of the increased nominal principal. That is, whether this increase should be paid throughout the term of the loan, at specified intervals, or at the time of repayment of the nominal principal. The term on both indexed loans and indexed deposits would have to be at least one year.

Financial institutions acting as conduits for indexed term deposits and loans would be required to report as taxable income the real interest expense charged to borrowers and would be able to deduct from taxable income the real interest income paid to the holders of indexed term deposits. Since they would be taxed on the spread in real interest rates, financial intermediaries would in general retain their present tax positions.

The following simplified example illustrates the proposal:

Assume that Mr. A invests $100 in an indexed term deposit carrying a real interest rate of 1 per cent per annum. If the Consumer Price Index increases 11 per cent in the year, Mr. A's deposit will generate real interest income of $1.11 ($100 x 1.11 x .01). Mr. A is entitled to receive $111 at the end of the year tax-free as a return of capital. The financial institution takes Mr. A's $100 and in the same period loans it to Company B as an indexed term loan carrying a real rate of interest of 4 per cent. At the end of the year, Company B must pay real interest to the financial institution of $4.44 ($100 x 1.11 x .04) and has a principal liability of $111 owing to the financial institution. The financial institution has generated taxable income of $3.33.

Compare this example with one that reflects present realities. Mr. A invests $100 in a savings account deposit paying 16 per cent annum. At the end of the year, Mr. A receives $116 from his term deposit and is taxable on $16.00 of this amount. Company B borrows $100 and must pay interest of, say, $19.00 at the end of the year. This payment is deductible from the company's income for tax purposes. For its part, the financial institution must pay tax on $3.00 ($19.00 - $16.00) of net interest income earned.

Table 1 demonstrates the relationship between investors, intermediaries, and borrowers, using simplified figures. The table emphasizes the benefits of the proposals for individual investors in high rate brackets and for borrowers in low brackets or in non-taxable positions. The actual effect of indexed term deposit and debt instruments will depend naturally on the relationship between nominal interest rates and the rate of inflation.

Technical Considerations

The proposal appears feasible, but despite its limited scope the legislation

Table 1
Comparison of sample results under present and proposed systems of term deposits and loans

		Present system	Proposed system	Change
Assumed inflation rate		11.0%	11.0%	
Individual investor	Taxable interest income	16.0%	1.0%	
	Tax-free indexing of principal	-	11.0%	
	Total return	16.0%	12.0%	-4.0%
	Net return after 60% tax	6.4%	11.4%	+5.0%
	50% tax	8.0%	11.5%	+3.5%
	30% tax	11.2%	11.7%	+ .5%
Financial intermediary	Taxable interest income	19.0%	4.0%	
	Deductible interest expense	16.0%	1.0%	
	Net return after tax	1.5%	1.5%	-
Eligible Borrower	Deductible interest expense	19.0%	4.0%	
	Non-deductible indexing of principal	-	11.0%	
	Net cost @ 50% tax	9.5%	13.0%	+3.5%
	25% tax	14.3%	14.0%	- .3%
	0%	19.0%	15.0%	-4.0%

necessary to implement it would be complex. For example:

- New Concept. The tax treatment of the indexed instruments would have to be carefully spelled out and co-ordinated with other specific provisions in the legislation that are based on classic legal distinctions between interest and capital, and rooted in historical cost concepts.

- Definitions. Definitions of eligible instruments, eligible intermediaries, and eligible borrowers would be lengthy. Analogous experience with registered retirement savings plans, small business development bonds, and term preferred shares is not encouraging. Too often such legislation turns out to be incomprehensible to the expert, let alone the persons whom it is supposed to benefit.

- Remedies for Ineligibility. The law has to spell out not only the treatment if everything is done right, but also the penalty if it is done wrong. If a borrower turned out to be ineligible (perhaps due to losing the small business deduction as the result of an assessment), would he then be liable to a special interest penalty for having taken out an indexed loan?

- The Matching Concept. What if financial intermediaries did not, or could not, match the inflow and outflow of indexed funds? Some appropriate remedy would have to be devised and spelled out in the law. Perhaps it could be as simple as requiring the indexed amounts to be included in calculating income. This would discourage institutions from making indexed loans out of unindexed debt. Alternatively, adjustments to nominal interest expense deductions and to real interest income could be performed if matching were not achieved.

- Eligible Institutions. Banks, trust companies, finance companies, life insurance companies, etc., are all regulated by special legislation and subject to distinct tax rules. These regulatory and tax rules would have to be reviewed and adjusted where necessary to enable the various institutions to participate.

- Changing Status. The implications of changing status would have to be considered. What would be done about the small business which negotiated a large long term indexed loan just before going public? Or the individual who ceased to reside in Canada while holding an indexed deposit?

- Eligible Farmers. Consideration would also have to be given to the definition of eligible farmers for purposes of the indexed term loans. There is a great deal of case law in determining whether persons are farmers, hobby farmers, or non-farmers for purposes of the restricted farm loss rules. It would appear that any definition of an eligible farmer would have to be either quite restrictive or very broad, if it is to avoid being subject to difficulties of interpretation.

- Small Business. Special rules would be needed to define eligible small business. Presumably any unincorporated business operated by residents would qualify. Eligibility of incorporated businesses could be tied to the small business deduction, though this could be restrictive. Income or asset tests are not generally practical for tax purposes.

- New Depreciable Capital Goods in Canada. - The term "new depreciable capital goods in Canada" for purposes of the indexed term loan would have to be examined. The term "in Canada" is already used in various places in the Income Tax Act - for instance, the investment tax credit is limited to goods purchased primarily for use in Canada. What time frame is associated with use in Canada is a question that has not been satisfactorily resolved in relation to the investment tax credit, although use in the purchaser's business could be a sufficient test. Similar problems could arise for indexed term loans. Consideration would have to be given to the specific scope of the term "new depreciable goods". If depreciable capital goods are simply defined as those for which a deduction is permitted pursuant to paragraph 20(1)(a) of the Income Tax Act, items such as patents, timberlands, industrial mineral mines, and certified feature films would qualify.

- Resale of Depreciable Goods. Rules would also have to be developed to cover the use of indexed loans to purchase eligible assets which are subsequently sold. Consideration could be given to allowing the transfer of the indexed loan if the loan were specifically identified with and secured by the asset, and the asset were purchased by an eligible participant. If the loan were not transferable, the value of the asset would presumably decrease upon resale. If the original purchaser of the asset were allowed to maintain his indexed term loan until the end of its term, potential avenues for abuse would open: participants might purchase assets just to obtain indexed term loans then promptly resell them.

- Tracking of Funds Borrowed. It would be difficult to specifically track borrowed funds to the ultimate purchase. For instance, if

Company A, an eligible small business, had $100,000 in the bank and wished to purchase a new depreciable capital property for use in Canada for $100,000, and also wished to invest $100,000 in capital stock of another company, would it be able to borrow $100,000 in an indexed term loan to purchase the depreciable property and to use its $100,000 in the bank to purchase the capital stock? Such considerations would add to administrative problems of the type raised by the federal government's "restricted interest" proposals, which are still under study because of their complexity.

- Negative Real Interest. One of the most interesting technical aspects of the proposal could be the treatment of negative interest rates. Economic analysis of the proposals has indicated that negative interest rates could arise on indexed term deposits. Investors in indexed term deposits would be better off, in certain tax brackets, receiving indexed principal less, say, negative 2 per cent interest than 16 per cent nominal interest. The legislation would have to specifically cover this aspect to remove any doubt as to the deductibility of negative interest on such an investment.

- Effective Date. The proposal obviously could not be quickly put into actual operation. Furthermore, to be effective for purchases of depreciable goods back to June 28, 1982, it would require more than a few words in the tax legislation. Presumably the borrower and lender would have to refinance the original loan with an indexed loan, agreeing on the financial terms of the new instrument and on their respective tax treatment.

This list is not intended to be exhaustive or to suggest the appropriate approach. Its intention is to demonstrate that even this limited proposal for indexing raises many technical considerations, despite its apparent simplicity.

Effect of Proposal on Financial Statements

The indexed-instrument scheme would have a significant effect on the financial statements of participants in the plan. An indexed term loan would appear on the balance sheet at its indexed amount, yet the balance sheet would show no corresponding increase for the asset being financed. The income statements of participants would reflect a real interest component, yet the other items in the statements would be expressed in nominal dollars.

This mode of financial statement presentation could prove misleading to users. Given such a mixing of nominal and real amounts, financial statements, performance indicators and ratios now in use might have to be reconsidered. Classical financial health tests such as working capital ratios, debt-to-equity ratios, and earnings ratios, used by banks and other financial statement users, would produce varied results if financial statements reflected indexed term loans.

Given the proposed limits on eligibility, this problem might not be overly acute. Yet it would still exist for those businesses that did use indexed term loans, and it would become more relevant if the scope of the indexed instrument plan were broadened. It would then become necessary to consider more appropriate methods of financial reporting and, as well, to educate participants in the plan in their use.

Pressures on Eligibility of Investors and Borrowers

The proposal is that indexed term deposits would be available only to individuals resident in Canada. At a minimum, the rules would have to be broadened to accommodate testamentary trusts, in order to deal with cases in which an individual owned indexed deposits on his death. More significantly, many individuals use corporations to hold their investments and would exert pressure for such corporations to be eligible. However, the inclusion of personal investment companies as eligible investors could pose problems if the investment were financed with funds borrowed personally. An individual who borrowed for this purpose could obtain a nominal interest deduction against other investment income, while the personal investment corporation would be subject to tax only on real interest income. If corporations were allowed to purchase indexed deposits, complex rules would have to be drafted to prohibit such abuses. This limited problem is indicative of the broader challenge inherent in a comprehensive system of indexing, since the tracking of loans and investments is critical for performing indexation of assets for tax purposes.

The pressure of the eligibility requirements for borrowers would be even more intense and even more difficult to resist. Purchasers of used homes and corporations no longer classified as "small" would find it difficult to accept their exclusion. For some specific departures from a tax system - such as an investment tax credit - such dividing lines can often be held. But when the measure is mainly a step towards a better tax system, narrow boundaries are hard to justify.

Relationship to Comprehensive Indexing

Comprehensive indexing involves an entirely different way of thinking about dollar values. Historical dollars in themselves no longer have meaning, but rather dollars inflated into constant amounts. In a period of inflation, dollar costs incurred last year are equivalent to higher dollar costs this year; interest costs must be divided into a nominal portion and a real one.

Conceptually, the government's proposal would make a valuable start in the direction of comprehensive indexing. It would divide the cost of borrowed money between compensation for inflation and real interest. It could also be integrated into a system of comprehensive indexing: the portion of assets financed with indexed debt could be regarded as equity financed and eligible for indexing. If the indexed debt proposal were widely applied, it would also ease the transition into a comprehensive system by minimizing the change in the treatment of interest expense.

On the other hand, distinctions between the White Paper proposal and comprehensive indexing should be noted:

- The technique of the proposal is different from that of comprehensive indexing and therefore adds a complication. Under comprehensive indexing, the tax system would usually contain the provisions which would adjust commercial transactions to a real basis. Under the proposal, the commercial transaction itself would be changed and the tax treatment adjusted only if the transaction fell within prescribed bounds.

- The proposal is relatively simple, whereas comprehensive indexing is very complex. Under comprehensive indexing, all taxpayers would be involved in extensive bookkeeping. There would also have to be techniques for consistent indexing through a variety of entities, such as corporations, trusts, etc.

- The proposal would only take care of debt. It would not touch the indexing of asset costs, and in fact it would increase the need for asset costs to be indexed.

- The indexing involved in the proposal would be voluntary, adopted only when it benefited the taxpayers involved. Comprehensive indexing would likely be mandatory, and there could be losers.

In summary, the proposal is conceptually consistent with comprehensive indexing. However, it adds a complication that would be justified only if the proposal were widely adopted and thus eased the transition into a comprehensive indexed system.

Relationship to the "6 and 5" Program

One goal of the White Paper proposal would be to adjust our thinking to the reality of inflation over an indefinite term. At the same time, the government is engaged - and hopes to engage us - in a serious effort to reduce inflation to 6 per cent and 5 per cent in the next two years. To the extent that the proposal is a step in reforming the tax system to accommodate the effects of inflation, its apparent direction is quite the opposite of that taken by the government's anti-inflation program. Perhaps, as is suggested in the White Paper, the program would help ease interest rates downwards to a level more typical of non-inflationary times, but to the unsophisticated the apparent differences in direction are rather mind-bending. The "6 and 5" campaign needs all the support it can get, and a lot of its thrust and hope for success lies in a non-inflationary way of thinking.

Consideration might therefore be given to a modified version of the White Paper proposal, under which the indexing of the principal would be at 6 per cent and 5 per cent. This modification would ease concern about uncertainty, effects on traditional financial markets, revenue costs, and negative real interest rates. The eligibility of borrowers could then be widened, which would contribute to any long term change in the tax system.

For example, under the proposal, principal indexed at a rate of 10 per cent with a negative real interest rate of 2 per cent would yield an investor in the 50 per cent bracket a net return of 9 per cent. If indexing were capped at 6 per cent, and the real interest rate were 6 per cent, such an investor would get 6 per cent non-taxable and, say, 6 per cent taxable interest for a final return of 9 per cent. In the long run, if inflation rates do moderate, interest rates paid on such instruments would then approximate real interest rates. On the other hand, if inflation worsened, the cap on the indexing might have to be raised, and a move made toward a comprehensive indexing system.

Summary of Appraisal

- The federal government's proposal for the indexing of certain financial instruments is worthwhile as a plan for reducing the distorting effects of inflation in the tax system.

- The proposal is, however, much more complex than it appears to be even in its simplified form, and a few months would be required to iron out its technical details.

- The proposed scheme is consistent in philosophy with a comprehensive indexed system, but it cannot be taken as a real test of such a system. If widely adopted, it would assist in the transition to a comprehensive system and could be integrated with it.

- The scheme is not consistent with the federal government's "6 and 5" program, and consideration could be given to capping the indexation of the instruments, as well as to reducing the limits on eligibility of borrowers.

INDEXED SHARE INVESTMENTS

The Proposal

In addition to the indexed instrument scheme, the White Paper also outlines a program designed to adjust the cost base of certain shares for inflation and thereby subject to tax only the real capital gain earned on these shares. A new type of registered plan, called the Registered Shareholder Investment Plan (RSIP), would hold all eligible investments that came under the new indexing rules.

Eligibility under the RSIP program would be limited to Canadian resident individuals purchasing common shares of taxable Canadian corporations listed on a Canadian stock exchange. The proposal envisions eligible individuals contributing to an RSIP through an investment dealer or other specified financial institution, which would then purchase common shares of eligible corporations on the individual's behalf. At the end of each year, the financial institution would determine the market value of the shares (presumably by referring to their quoted share value) and index the indivdual's contributions to the RSIP on the basis of the change in the Consumer Price Index since the previous year-end. The financial institution would report to the individual the difference between the market value and indexed value of his RSIP holdings, and the individual would report this amount as a capital gain or capital loss. The current system of taxing one-half of capital gains would continue, but one-half of capital losses from the plan would be eligible as a deduction from the individual's income from any source in the year and would not be subject to the present $2,000 limitation. The market value of the shares at year-end would provide the base for indexation in the following taxation year. Individuals would be required to accrue capital gains and capital losses each year for tax purposes, whether any disposals had occurred in the plan. To avoid abuses, amounts in the plan would be subject to indexation only for the period they were invested in the plan - that is, indexing would be prorated on the basis of the number of days the shares were held.

The system as proposed contemplates an RSIP "pool" - that is, the individual's investments would be all grouped together to form one pool and indexation would be performed on this pool in aggregate. The investment dealer or other specified financial institution would provide the individual investor with an information slip (similar to a T5 slip) each year indicating the amount that the individual would have to report on his tax return. As was the case with indexed term deposits, the RSIP program would exclude real capital gains from the $1,000 investment income deduction and deny interest deductibility on funds borrowed to invest in an RSIP.

The following example illustrates the operation of an RSIP. Assume that Mr. A has an RSIP with market value at the beginning of the year of \$1,000. Half-way through the year, Mr. A purchases additional shares through his RSIP for \$500. If the Consumer Price Index increases by 12 per cent evenly throughout the year and the year-end market value of Mr. A's RSIP is \$1,800, the investment dealer or specified financial institution will report the following to Mr. A:

- Indexed value of RSIP of \$1,650 (\$1,000 x 1.12 + \$500 x 1.06).

- Real capital gain of \$150 (\$1,800 - \$1,650).

Mr. A will be required to report one-half of this real gain on this income tax return for the year, even though he did not dispose of any stock held under the plan. The year-end market value of Mr. A's RSIP, \$1,800, becomes the basis for indexation in the following year.

Design Considerations

The tax legislation necessary to implement the RSIP proposal would be fairly complex. Definitions of eligible participants and investments would be required, and the operations of the RSIP program would have to be interrelated with the Income Tax Act.

The White Paper proposes to limit investment in RSIP's to individuals resident in Canada. As was noted in the discussion of indexed instruments, some accommodation would have to be made for testamentary trusts, and there would be pressure to extend eligibility to personal investment corporations.

The plan would have eligible individuals contribute funds to RSIP's through investment dealers or other specified financial institutions. Presumably, eligible institutions would include banks and trust companies (as is the case with RRSP's). However, other institutions, such as life insurance companies, would probably also like to participate in the plan. The types of institutions dealing with RSIP's could be different from those acting as intermediaries for indexed debt instruments, since they would be providing an investment and bookkeeping service rather than a money-lending service, without the risks involved in the latter.

Funds invested in RSIP's could be used only to purchase common shares of taxable Canadian corporations listed on Canadian stock exchanges. The purpose of this restriction is apparently to enable the investment dealer or other specified financial institution to readily obtain a market value for the stocks in the RSIP. If the RSIP program proves to be a successful method of obtaining capital for public companies, private companies would probably also wish to participate in the plan. However, it would then be very difficult to assess the value of RSIP's on an accrual basis.

Apparently the "market value" of the shares held in an RSIP at the end of the year would simply be their trading value at year-end. Yet this trading value might not accurately reflect the actual market value of shares. For example, the trading value of shares that were rarely or never traded would not reflect an accurate market value; on the other hand, the trading value of abnormally active shares might also not reflect an accurate market value. Individuals holding a controlling block of shares would benefit from using trading value as market value, since the control premium would not be reflected in the trading value of the stock. Short of requiring frequent valuations, it is doubtful that rules could be developed to emcompass all aspects of market value inherent in common stock.

Technical Considerations

Many of the technical considerations discussed in relation to the indexed instrument proposal also apply to the RSIP proposal. Specifically, rules would have to be developed to cover situations in which eligible participants become non-eligible or eligible instruments were sold or became non-eligible, and to determine the tracing of borrowed funds used to invest in RSIP's. In addition, penalty provisions would be required for investors making ineligible investments through their RSIP's. These penalty provisions could be similar to those contained in the RRSP regulations - though presumably they would be less harsh, since an RSIP, unlike an RRSP, would not result in any tax deferral. Tax savings would arise only on disposal of investments contained in the RSIP.

Bookkeeping and Reporting

The White Paper suggests that the investment dealer or other specified financial institution would provide indexed and market value information for each individual's RSIP. This should be quite manageable, provided deposits and withdrawals were not too frequent. Separate indexing for each share would not be necessary. Any fee charged by investment dealers and specified financial institutions would presumably be deductible for tax purposes by investors.

Accrual of Capital Gains and Losses

One aspect of the RSIP proposal that needs to be carefully examined is the concept of accrual of unrealized real capital gains and losses. There are a number of practical problems associated with such an accrual concept. Fluctuations in the value of stocks from period to period could cause individuals to have abnormally high gains in one year and abnormally high losses in the next year. The new type of forward averaging mechanism (in the federal budget of November 1981) would help with respect to high years, but investors would not appreciate the cash drain for a gain not realized currently - and perhaps never to be realized. This could cause individuals to dispose of stock prematurely in order to meet their tax liabilities. In a low year, the deduction of real capital losses against any income would be beneficial. However, real capital losses could conceivably be sufficient to wipe out other income and eliminate the benefit of low rates and personal exemptions. In other words, a new method of averaging would be needed.

A potential investor in an RSIP would have to carefully examine his intentions for the stocks purchased through the plan. Expectations as to holding period, expected market value increases (absolute amount and timing), and inflationary increases would be necessary to determine whether the RSIP route would give better results than a conventional purchase. The longer the intended holding period with expected real capital gains, the more attractive a conventional purchase would be.

Relationship to Tax Reform

Aside from these practical considerations, in reviewing the RSIP proposal one must wonder whether it represents the first step by the federal government toward requiring the annual accrual of capital gains and losses on all capital property. Moreover, one must also wonder whether full taxation of capital gains is just around the corner. The taxation of capital gains has been an active topic in the federal government recently, and there is evidence of a general predisposition towards the accrual basis. Such a fundamental shift should be considered on its own merits, not in the context of a proposal which is a combination of a limited move towards indexation and an incentive.

Relationship to Comprehensive Indexing

Because the RSIP program would apply to only one kind of capital asset, it would be less useful than the indexed debt instrument scheme as a preliminary step towards comprehensive indexing. An important feature of the RSIP proposal is its implicit presumption that under such a comprehensive system, capital gains on all marketable shares would be taxed on an accrual basis.

Alternative Measures

The treatment of RSIP capital gains and losses on an accrual basis would not be strictly necessary to the functioning of the plan. An alternative would be to maintain the present method of only taxing capital gains when realized and of only allowing the deduction of capital losses when realized. In this case, it would be necessary to index each RSIP-held share separately, but this increase in "bookkeeping" could presumably be handled by the RSIP administrators. If not, there is little hope for comprehensive indexing!

If capital gains and losses were taxed only when realized, the problem of measuring market values would be avoided and the scope of eligible investments could be accordingly increased. Shares of private corporations and non-depreciable capital property other than shares could be included as eligible investments under the program.

Since the proposal has only limited value as a prelude to full indexing, alternatives for incentive purposes could be considered. For example, investment in Canadian shares could, within limits, be deductible from income, along lines which have been suggested to the federal government from time to time. However, a complete exemption of gains on Canadian shares would be difficult to accommodate, since it would revive surplus stripping problems of the past.

Summary of Appraisal

- The RSIP proposal is workable and ingenious, but it is not desirable in the form suggested.

- Since the proposal affects only one very limited kind of capital asset, it has little value as a first step towards complete indexation of the tax system.

- The RSIP proposal contains the leading edge of a basic reform of the tax system - namely the assessment of capital gains and losses on an accrual basis. This should be discussed separately on its own merits.

- The incentive effect of the proposed measure would be weakened by the requirement to report gains on an accrual basis. If indexing is applied to gains on Canadian shares, the realization basis should be retained.

Inflation and the Taxation of Personal Investment Income: An appraisal

G. V. Jump and T. A. Wilson

INTRODUCTION

The interaction of inflation with the present tax structure, which does not recognize the impact of inflation on income from capital, distorts real, after-tax yields. If restrictive monetary policies are adopted to combat inflation, the resulting increases in real interest rates magnify these distortions. Table 1 on page 77 presents illustrative calculations of the impact of inflation on lenders and borrowers in different tax brackets. As these examples show, inflation reduces real yields for unsheltered savings of individuals in the higher marginal tax brackets and raises the real cost of borrowed funds to borrowers with low or zero (non-deductible) effective marginal tax rates. If a restrictive monetary policy is applied, raising real yields across all tax brackets, a disproportionate burden falls on borrowers in low or zero tax brackets. Typically this group includes homeowners, agriculture, other small businesses, and the government sector itself. To offset the impact of inflation on borrowers in the 50 per cent marginal income tax bracket would require a restrictive monetary policy that raised real yields by more than double the rate of inflation. Needless to say, such a policy would put extraordinary strains on the housing, farming, and small business sectors, and would increase the risk of bankruptcy of firms in loss positions.

A general system of indexing capital income would eliminate such

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inflation distortions across all sectors and mitigate the uneven sectoral impact of restrictive monetary policies. Indeed, the elimination or reduction of these distortions is the fundamental rationale for the proposals put forward in the White Paper. However, the White Paper proposals are a far cry from such a scheme of general indexation.

The proposed measures would provide a limited sheltering of inflation-related interest income and capital gains, coupled with the recognition of debtors' gains from reduced real values of debt, and the taxation of real gains on sheltered equity assets on an accrual rather than a realization basis (with full recognition of real capital losses).

The creation of the two new debt instruments - indexed term deposits (ITD's) and indexed term loans (ITL's) - has two advantages for lenders:

- the elimination of tax on illusory inflation-induced income, and
- the reduction in inflation risk.

It may therefore be anticipated that many taxable holders of non-indexed interest bearing assets would seek to switch that portion of their assets which is currently not sheltered from income tax into ITD's, unless the real rate of return on the latter were extraordinarily low.

At a representative current interest rate of 16 per cent and a projected inflation rate of 9 per cent, risk-neutral investors with marginal tax rates on interest income above 35 per cent would prefer an indexed instrument with a 2 per cent real yield to yields on existing deposits. Risk-neutral investors with marginal tax rates at or above 45 per cent would even prefer an indexed instrument with a zero real yield to existing unindexed assets.

The case of risk-neutral borrowers would be the obverse of that of lenders. Rather than borrow at current rates, borrowers with effective marginal rates of tax below 35 per cent would prefer to pay a real interest rate of 2 per cent on an indexed basis (with the inflation component of interest not deductible).

Since the proposals envisage no restrictions on individuals investing in indexed term deposits but place rather severe restrictions on access to indexed term loans, non-price rationing may be necessary to clear the market on the lending side, unless negative real rates of interest on the indexed deposits are feasible.

Given the present form of the proposals, there is a serious risk that their implementation would introduce additional distortions into the capital market. However, the proposals could be generalized in such a way as to mitigate rather than exacerbate distortions now arising from the interaction of inflation, restrictive monetary policy, and an unindexed tax structure. This could be accomplished by relaxing the eligibility restrictions to make possible a much broader participation of borrowers and lenders. In order to assess the magnitude of assets which might be involved and to determine the revenue effects of broadening eligibility, a quantitative appraisal is required. The next two sections present relevant estimates of the volume of assets affected and the associated possible revenue costs to the government sector under alternative assumptions regarding government participation in the borrowing side of the market and the elimination of certain tax shelters.

Indexed Debt Instruments

The White Paper proposes the introduction of new indexed debt instruments via participating financial intermediaries. Stated briefly, the proposal would allow financial intermediaries to issue indexed term deposits (ITD's) paying some pre-set real rate of interest. Both the real interest payment and the principal amount of the deposit would be adjusted - probably on an annual or semi-annual basis - to movements in some aggregate price index. These deposits would be restricted, at least initially, to individuals and to Canadian residents. Depositors would be liable for income taxes only on real interest receipts; the inflation-based adjustments to the principal amount of the deposit would be tax-exempt. Financial intermediaries which issue ITD's would be required to use the funds obtained to make indexed loans to small businesses and indexed mortgage loans to purchasers of new housing. Borrowers would pay a pre-arranged real rate of interest and the principal amount of the loan would be adjusted in proportion to changes in some price index. Only the real interest payments would be regarded as a tax-deductible expense for business borrowers. To complete the tax implications, participating financial intermediaries would be required to report real interest receipts from loans as taxable income but would be permitted to deduct real interest payments to depositors as expenses.

An important part of the proposal is the requirement that participating financial intermediaries match ITD's with indexed loans on some sort of dollar-for-dollar basis. The precise rules for matching have yet to be defined, but the intent of the proposal appears to be to make financial intermediaries simply a conduit between the borrowers and lenders of the indexed instruments.

It is likely - at least initially - that financial intermediaries will try to match borrowers and lenders via a market-clearing auction process. That is, intermediaries will set some value for the real rate of interest charged on indexed loans. They will set some lower value for the rate of interest paid on ITD's. The spread between these two rates will likely be 2-3 percentage points - in line with the historical spread between lending and borrowing rates on conventional debt instruments. To ensure a match between ITD's and loans, intermediaries will adjust the levels of the two real rates of interest (leaving the spread intact) until a market-clearing level is found.

Since Canada has had no previous experience with indexed debt instruments, any estimate as to the levels of the real rates of interest that will establish market equilibrium must be highly speculative. The drafters of the White Paper clearly hope that the equilibrium real rate for borrowers will not be very high (5 percentage points or less), so that the new instruments will lower the costs of borrowing to small businesses and buyers of new homes. Whether this will turn out to be the case will depend upon the responses of lenders and borrowers to the new instruments.

If ITD's have a wide appeal to individual investors, the volume of funds flowing into financial intermediaries is likely to swamp the demand for indexed loans by small businesses and buyers of new homes. In this event, financial intermediaries will have to set low values for real rates of interest, discouraging would-be depositors and encouraging would-be borrowers, in order to make a match of indexed deposits and loans. A value for the real rate of interest paid to depositors equal to or even less than zero is conceivable under these circumstances. Alternatively, it may turn out that indexed deposits do not appeal to investors, in which case market clearing will require positive and, perhaps, high real rates of interest.

Some indication as to which outcome is more likely can be gained by analyzing the potential demand for indexed deposits on the one hand and for indexed loans on the other. Such analysis can also shed some light on the question of what levels of real interest rates are likely to emerge and, as well, give some indication of the potential effects of the introduction of indexed debt instruments on other segments of capital markets.

The Potential Demand for Indexed Term Deposits

Indexed term deposits offer individual investors an asset with two novel features: (1) a unique form of taxation on investment income not presently available on other assets, and (2) an asset that is free of inflation risk - something that apparently cannot be duplicated by any other asset or portfolio of assets. Certain investors will find one or both of these features appealing and will seek to invest in the ITD's. Monies invested in the new debt instruments will predominantly be the result of investors swapping funds previously invested in conventional assets. Conventional debt instruments appear to be the closest equivalents to ITD's, and it seems likely that the bulk of funds transferred into the new deposits will come from conventional term and savings deposits or from sales of conventional bonds.

Our analysis of the potential demand for ITD's will deal exclusively with the potential magnitude of swaps from funds currently invested in conventional debt instruments. We will ignore potential swaps from equity, real estate, and other assets. We will also not deal with the possibility that ITD's may stimulate investors to consume less and save more - thereby increasing the overall supply of loanable funds. The justification for this is twofold. First, existing theoretical and empirical literature does not strongly support the notion that aggregate saving flows are highly sensitive to modest variations in the rates of return available on new savings. Second, the potential magnitude of demand for indexed term deposits via swaps from existing debt instruments is so large that it probably overwhelms these alternative sources of demand.

Of the two novel features introduced by ITD's, the role of tax considerations in influencing the potential demand for these new instruments is by far the easier to analyze. Ignoring risk considerations, an individual investor will choose between indexed and conventional debt solely on the basis of rates of return; that is, he will prefer the asset with the higher real, after-tax yield. Any holder of conventional debt who can realize a higher real yield (after-tax) by switching into ITD's is likely to do so. It is relatively easy to identify those individual investors for whom this will be the case.

The general supposition that investors are (on average) risk averse suggests that ITD's may attract some additional funds even when they have inferior real, after-tax yields - because of their zero inflation risk characteristic. Unfortunately, the volume of funds which might be redirected towards ITD's for this reason is very difficult to estimate. Inflation risk is just one of many types of risk faced by investors. An analysis of how the introduction of zero inflation risk might affect investor choices would require the use of rather abstract portfolio theory and goes beyond the scope of the present paper. In analyzing the potential demand for ITD's, we will proceed on the assumption that risk considerations are ignored. Our findings will, therefore, have to be taken with a certain amount of caution.

The third column of Table 1 shows the range of real, after-tax rates of return faced by holders of conventional debt subject to different effective tax rates on interest income. Given current nominal interest rates (16 per cent on one-year certificates of deposit) and a projected inflation rate of 12 per cent (approximately equal to the rate of increase in the Consumer Price Index over the past year), any individual who faces an effective tax rate greater than 0.25 can expect to earn a negative real, after-tax rate of return on conventional debt in today's market. Furthermore, the greater the effective tax rate, the lower is the expected rate of return. The great divergence in yields shown in the table is attributable to the tax treatment of conventional interest income. The entire amount of nominal interest receipts is subject to tax unless it is sheltered by some special provision in the Income Tax Act.

Assuming that current market conditions continue to prevail at the time ITD's come into the market, it is a fairly simple matter to determine which investors will be likely to swap into them. Of course, the numbers involved will depend upon the real rate of interest paid on the new debt instruments. We do not know what that will be, but we can do a sensitivity analysis across the range of reasonable possibilities.

Under the conditions depicted in the table, it is very unlikely that financial intermediaries would pay in excess of a 4 per cent real rate interest

TABLE 1

Illustrative after-tax yields on conventional debt

Effective tax rate	Nominal interest rate 4% Inflation rate 0%	Nominal interest rate 16% Inflation rate 12%	Nominal interest rate 20% Inflation rate 12%
0.0	4.0	3.6	7.1
0.1	3.6	2.1	5.4
0.2	3.2	0.7	3.6
0.3	2.8	-0.7	1.8
0.4	2.4	-2.1	0.0
0.5	2.0	-3.6	-1.8

on ITD's. The real, after-tax yield on an indexed deposit is computed simply as (1-t)r, where t is the effective tax rate and r is the real rate of interest. With r = 4.0 per cent, an indexed deposit offers a real yield at least as high as the yield on conventional debt for all effective tax rates. This must be close to a maximum value for r, for at this value virtually all investors would want to switch from conventional to indexed debt. Financial intermediaries would find it impossible to "match" ITD funds with indexed loans in this case.

A lower bound to the real rate of interest which intermediaries might pay does not readily emerge from the table. It is logical to define the lower bound as the highest real rate of interest at which there would be zero demand for ITD's by existing investors. If t^1 is the largest effective tax rate faced by a holder of existing debt, the lower bound is the value, r_L, which satisfies the following equation:

$$r_L = \frac{1 + (1 - t)i}{1 + P} - 1,$$

where i is the nominal interest rate on ordinary deposits and P is the rate of inflation.

We do not know the maximum tax rate faced by some existing debt holder, but if t^1 is large, it is clear that r_L will be well below zero. If, for example, t^1 is 0.5 (the highest combined federal and Ontario marginal tax rate currently in effect), then r_L would be equal to -3.6 per cent! Even if t^1 is as low as 0.33, which is unlikely, r_L would be -1.1 per cent.

Clearly there is a large range of possible values for the "market equilibrium" real rate of interest on indexed debt. Rather than investigate all of the possibilities within this broad range, we have computed some estimates of the potential demand for ITD's at three values for r: +2.0, 0.0, and -2.0 per cent. These values do not span the extreme range of possibilities but appear to cover the most likely outcomes. Incidentally, we have chosen not to be constrained by the possibility that 0.0 per cent represents some psychological barrier to the value of r. It has been suggested that financial intermediaries would be reluctant to pay a negative real rate of interest on term deposits. If the market equilibrium real rate turns out to be less than 0.0 per cent, it has been argued, intermediaries are likely to set $r = 0.0$ per cent and use non-price rationing to limit the demand for ITD's. This argument may well be valid and we shall return to it later.

Table 2 summarizes the pivotal values of effective tax rates associated with the three selected values for r. The table shows that if $r = +2.0$ per cent any holder of debt facing an effective tax rate on interest income greater than 0.11 will want to switch into ITD's. The 0.11 value is the pivotal tax rate in this case because investors facing lower rates will prefer to remain in conventional debt. As the real rate of interest paid on ITD's declines to 0.0 per cent and -2.0 per cent, the pivotal tax rate rises to 0.25 and 0.39, respectively. The figures in the table are computed from current nominal interest rate (16 per cent) and inflation rate (12 per cent) values. Should either or both of these underlying variables change, the pivotal tax rates will also change. This possibility is investigated in more detail later.

Now let us consider the implications of the pivotal tax rate. The typical holder of conventional debt assets faces an array of effective tax rates on the interest income from those assets. Some of this income is tax-sheltered in the form of RRSP's, RHOSP's, or trusts, or by the $1,000 investment income deduction. The effective tax rate applicable to tax-sheltered interest income is zero; hence the investor will not have an incentive to shift tax-sheltered debt into ITD's that are not eligible for this favoured tax treatment. The White Paper makes it clear that the real interest income from ITD's will be subject to tax at full rates. The $1,000

Table 2

Pivotal values for effective tax rates (nominal interest rate = 16%; inflation rate = 12%)

Real rate of interest on ITD's (before tax)	Pivotal value of effective tax rate[a]	After-tax real yield
+2.0%	0.11	1.78%
0.0%	0.25	0
-2.0%	0.39	-1.22%[b]

[a] An investor facing an effective tax rate equal to the pivotal value will be indifferent between indexed debt and conventional debt with a nominal interest rate of 16 per cent when the rate of price inflation is 12 per cent. An investor facing a higher tax rate will prefer indexed debt; one facing a lower tax rate will prefer conventional debt.

[b] It is assumed here that an investor who earns a negative real rate of interest on an ITD will be entitled to a tax deduction (against other income) equal to his negative real interest earnings.

investment income exclusion will not apply to this form of interest income.

Indexed term deposits will be an attractive alternative only for unsheltered conventional debt. For r = +2.0 per cent, any investor who faces an effective tax rate on unsheltered interest income in excess of 11 per cent will consider converting his unsheltered debt assets into ITD's. The number of investors who do have unsheltered interest income subject to tax at rates higher than 11 per cent is likely to be large. The total volume of their unsheltered debt assets provides an estimate of the potential demand for ITD's under current market conditions and a value of r equal to +2.0 per cent. Similarly, the total values of unsheltered debt assets held by investors subject to effective tax rates higher than 25 per cent and 39 per cent provide estimates of the potential demand for ITD's given values for r of 0.0 per cent and -2.0 per cent, respectively.

Unfortunately, it is not possible to identify precisely the aggregate quantities cited above from currently published statistics. However, some idea of the magnitudes involved can be gained from the aggregative personal income tax data reported in the Revenue Canada publication, Taxation Statistics. This publication details the quantity of interest income reported as taxable income by taxpayers in various income classes.

interest income sheltered in RHOSP's, RRSP's, and trusts does not get reported, so the figures provided for interest income measure only the sum total of unsheltered interest income plus interest income sheltered under the $1,000 investment income deduction. Values claimed for the total investment income exclusion are shown separately, as are figures for dividends and capital gains - the other forms of investment income eligible for this tax deduction. This makes it possible to compute upper- and lower-bound estimates for the total value of unsheltered interest income. From these estimates it is possible to compute upper- and lower-bound estimates of the quantities of unsheltered debt assets held by taxpayers facing effective tax rates in excess of the various pivotal values.

The latest taxation year for which detailed tax statistics are available is 1979. Our estimates of unsheltered debt assets are computed from these data and represent values appropriate for 1979. The totals have no doubt grown since then, but we have no way of knowing by how much. The 1979 estimates will at least provide a rough idea of the potential demand for ITD's. These estimates are reported in Table 3. Details of the computations are given in the appendix to this paper.

The outstanding feature of the estimates is their large magnitudes. Within the range of real interest rates being considered, the potential demand for ITD's - simply as a result of conversions from existing debt instruments - appears to be in the range of from 20 to 70 billion dollars under existing market conditions. Moreover, to the extent that there has been additional net asset accumulation since 1979, this range of estimates is very likely too low.

Even if intermediaries offer a real rate of -2.0 per cent, public response to ITD's is potentially staggering. Since eligibility for indexed loans is to be severely restricted, it seems likely that intermediaries would have a difficult time matching indexed loans with ITD's under the conditions which underlie our estimates. Either demand would have to be rationed by non-price means or intermediaries would have to offer ITD's at negative real rates.

It should be noted that these conclusions are extremely sensitive to assumptions regarding the nominal rate of interest and the rate of price inflation. More specifically, if both nominal interest rates and expectations of inflation decline substantially before ITD's are introduced, the potential demand for those assets could delince substantially as well.

Table 3
Upper and lower bound estimates of unsheltered debt assets held by individual Canadian investors in 1979

(billions of dollars)

Nominal interest rate = 16%; inflation rate = 12%

Estimated value of debt assets for which interest earnings are subject to tax rates in excess of

	(r = +2.0)	(r = 0.0)	(r = -2.0)
	0.11	0.25	0.39
Upper bound	70.53	70.49	24.36
Lower bound	54.05	54.02	19.85
Mid-range value	62.29	62.26	22.10

Suppose, for example, that Canadian investors come to expect that the federal government's target of a 6 per cent inflation rate will be realized in the year following the introduction of ITD's. (It is the ex ante expected rate of price inflation, together with the nominal rate of interest, which influences the behaviour of investors.) Under these expectations nominal interest rates are likely to decline as well. Let us suppose that the nominal interest rate earned on conventional debt were to decline to 10 per cent - a value which maintains the 4 per cent spread between interest rates and inflation used in the previous computations.

Under this combination of market conditions, the pivotal tax rates associated with real interest rates on ITD's of +2.0, 0.0, and -2.0 per cent are 0.19, .40, and 0.61, respectively. Upper and lower bound estimates for the potential demand for ITD's under these conditions are shown in the upper panel of Table 4. Once again, the computations underlying the figures in the table are based on 1979 personal income tax statistics and represent estimates which would have been relevant in that year had the present schedule of federal and provincial tax rates been in effect.*

The upper panel of Table 4 gives a good indication of just how sen-

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* To be precise, current combined federal-provincial marginal tax rates were applied to 1979 tax brackets. These brackets have of course widened with inflation indexing over time, but interest income has also risen at least as fast as inflation.

Table 4
Upper and lower bound estimates of unsheltered debt assets held by individual Canadian investors in 1979*: alternative inflation and interest rate assumptions

(billions of dollars)

Nominal interest rate = 10%; inflation rate = 6%

	Pivotal tax rates		
	(r = + 2.0)	(r = 0.0)	(r = - 2.0)
	0.19	0.40	0.61
Upper bound	70.53	24.36	0.0
Lower bound	54.05	19.85	0.0
Mid-range value	62.29	22.10	0.0

Nominal interest rate = 16%; inflation rate = 9%

	Pivotal tax rates		
	(r = + 2.0)	(r = 0.0)	(r = - 2.0)
	0.30	0.44	0.57
Upper bound	56.13	24.36	0.0
Lower bound	41.67	19.85	0.0
Mid-range value	48.90	22.10	0.0

* Figures show estimated values of unsheltered debt assets subject to tax rates in excess of the pivotal rates during 1979.

sitive the demand for ITD's is likely to be to variations in the real rate of interest paid on these deposits. The bulk of unsheltered debt assets were held in 1979 by individuals who would face marginal tax rates in excess of 0.25 under today's combined federal and provincial tax schedules. As the pivotal tax rate rises from 0.0 to 0.25, there is very little reduction in the potential demand for ITD's. Above the pivotal rate of 0.25, however, potential demand for these deposits becomes highly elastic. In an economic setting where the nominal rate of interest is 10 per cent and the (expected) rate of price inflation is 6 per cent, variations in the real rate of interest paid on ITD's from +2.0 per cent to 0.0 per cent cause the pivotal tax rate to rise from 0.25 to 0.40. This spans the highly elastic range of ITD demand. As shown in the table, the potential demand for ITD's drops precipitously with the move from r = +2.0 per cent to r = 0.0 per cent. While the potential demand is still substantial at a 0.0 per cent real rate, it is estimated to be only about one-third the potential demand at the higher real rate.

It is probably wise not to place too much emphasis on the estimates associated with a 6.0 per cent (expected) rate of inflation. If current economic forecasts are to be believed, the rate of inflation over the next year or two is likely to be well in excess of 6.0 per cent. As a final alternative, we have prepared estimates of the potential demand for ITD's using what appears to be a near consensus among forecasters for the rate of price inflation over the coming year. The most commonly forecast value for inflation over the next year is near 9 per cent, and a recent typical value for the nominal interest rate on term deposits is 16 per cent.

The bottom panel of Table 4 shows some estimates for the potential demand for ITD's using these inflation and nominal interest rates. Once again, the estimates show potential demand at real rates of interest paid on ITD's of +2.0, 0.0, and -2.0 per cent. The pivotal tax rates corresponding to these real rates are 0.30, 0.44, and 0.57, respectively. These pivotal rates span the elastic portion of the schedule of demand for ITD's, and the estimated values show a considerable variation across the range of real interest rates shown in the table. Under the given economic conditions, the potential demand for ITD's - strictly as a result of swaps from conventional debt assets - could be as high as $24 Billion at a 0.0 per cent real interest rate and $56 Billion at a +2.0 per cent real interest rate.

The Consequences of a Mismatch in the Market for Indexed Debt

The wide range of estimates for the potential demand for ITD's should certainly alert us to the possibility of a mismatch in the indexed debt market. Under the current White Paper proposals, all individual investors are to be eligible to purchase ITD's, whereas the demand for indexed loans is to be severely restricted - to mortgages used to finance newly constructed homes and to small business loans used solely for the purchase of net new depreciable assets. It should be noted that these restrictions have the effect of limiting indexed loan demand to finance flows of specific forms of new capital investment. Unless the restrictions are modified, eligible borrowers will not be able to use indexed loans to re-finance their existing stocks of capital assets; that is, a borrower will not be able to convert his existing stock of debt into indexed debt.

The distinction between stocks of assets and flows of net new asset acquisition is important here because it implies a possible mismatch of indexed funds. The potential demand for ITD's, for which we have derived estimates, represents stock conversions; that is, lenders will be permitted to convert stocks of existing assets into indexed debt. The White Paper proposal, as written, calls for financial intermediaries to match a stock demand for ITD's with a flow demand for indexed debt at the time the new instruments are introduced.

If ITD's are offered at non-negative real rates of interest, it is extremely likely that the demand for them will - at least in the early years - greatly overwhelm the demand for indexed loans by eligible borrowers. It is simply not plausible that potential borrowers would be willing or able to acquire sufficient net new capital assets to absorb the $22 billion or more worth of ITD funds likely to be forthcoming, given non-negative real rates of interest, in the first year of the program.

The White Paper estimates a maximum demand for indexed loans of $18 to $20 billion in the first year, with a figure of $10 to $12 billion more likely. We do not know the source of these estimates, but in light of our own estimates of the demand for ITD's it does not seem likely that a match could be made even at $18 to $20 billion, given non-negative real rates of interest, without some form of non-price rationing to limit the demand for indexed deposits. Either ITD's will have to be initially offered at negative real rates of interest or participating financial intermediaries will have to refuse to accept some deposits. One form of rationing might be for intermediaries to limit individual depositors to some maximum amount - say $500.

In our opinion, the White Paper restrictions on eligibility for ITL's are both unnecessarily restrictive and poorly conceived. There seems to be no logical reason why indexed loans should not be offered to a wider range of borrowers. Why not allow all business loans to be indexed - at the option of the borrower? Why not allow all mortgage loans - even those on existing homes - to be indexed? This would correct the stock-flow imbalance and greatly reduce the possibility of a mismatch. At the same time, it would make it clear that the principle of indexing is more properly viewed as a fundamental structural change in the tax system rather than as an arbitrary device to channel low-cost loans into sectors of the economy that are - for the moment - cyclically depressed.

Government Revenue Implications

While it is not directly stated in the White Paper, it seems clear that the government is reluctant to broaden the eligibility requirements for indexed loans for fear of losing additional tax revenues. As later analysis will demonstrate, it is far from certain that more generous eligibility requirements would result in lost tax revenues. However, for the sake of argument, let us assume for the moment that tax revenues would decline if eligibility were expanded. Is this a valid reason for not doing it? We do not think so.

The main purpose of introducing indexing is to "correct" distortions in the tax system that have arisen because present definitions of taxable income are inappropriate in an inflationary environment. Indexing will help eliminate these distortions and produce a more equitable tax system - one that does not exact a penalty from investors simply because inflation is high and variable. Indexing is therefore justified on grounds of both equity and efficiency.

Of course, there is no getting around the basic economic truth that any tax system must provide sufficient revenues to finance the activities of government. If a move to indexing reduces total revenues, some counter-move must also be taken to offset this. Either the general level of tax rates must be increased (or tax reductions postponed) or the level of the government's deficit must be permitted to rise (implying some rise in the level of future tax rates). Which of these two counter-moves is more appropriate is a political as well as an economic question upon which we do not wish to comment further. However, we do wish to emphasize that considerations of the revenue-generating power of the tax system should not override the issues of equity and efficiency. A move in the direction of more comprehensive indexing is an overdue move in the right direction. If it costs some revenues in the short run, this can be counteracted by raising tax rates, reducing expenditures, or eliminating certain tax expenditures.

It should be noted in this context that indexing also represents a rather sophisticated application of supply-side economics. By reducing distortions in the taxation of investment income in an inflationary environment, indexing should provide an increased incentive to acquire capital assets. Even when inflation is low, indexation should encourage additional capital formation by reducing the sensitivity of investment income to the risk of future variations in the inflation rate. Over the medium and long terms, higher capital formation leads to increased productive capacity, higher potential output, and a consequent increase in the tax base. Governments overly concerned about the loss of current tax revenues as a result of indexing are advised to consider the longer term implications as well.

Will Relaxation of the Limitations on Borrowers Lead to a Loss in Government Revenues?

While the preceding sub-section has argued that tax revenue implications should not be a major factor affecting the decision to index, it is possible (and even likely) that there will still be considerable concern over these revenue effects. And there is little doubt that the introduction of indexed debt instruments as per the White Paper proposal will cause an initial loss of tax revenues to both the federal and provincial governments.

In this section we discuss the effects on government revenues of broadening eligibility for indexed loans, providing some illustrative estimates of the potential revenue costs in 1979 dollars.*

Imagine that the White Paper proposals have been implemented as they stand, with virtually unlimited access by individuals to indexed term deposits but severe restrictions on eligibility for indexed term loans. It is very likely that the market for indexed debt would clear at a negative real rate of interest for ITD's, at least in the initial year. Even if the flow of savings allocated to ITD's at a zero real interest rate matched the flow of investments attracted to indexed loans at a low positive real rate, over a considerable transition period, a large portion of the stock of existing term deposits and other debt instruments would be converted (or attempt to be converted) into ITD's. Either negative real rates or non-price rationing (by government regulation or by the financial intermediaries themselves) would likely be required to clear the market, at least until the conversion of the stock of existing unsheltered interest-earning assets held by higher-income individuals were completed.

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* All tabulations are for the year 1979 because this is the latest year for which published Taxation Statistics are available. However, current statutory tax rates were applied to 1979 tax brackets in estimating the potential revenue effects of indexing.

If the restrictions on borrowers were relaxed somewhat, so that the market for ITD's cleared at a zero interest rate, long-run revenue loss could amount to about 1 billion 1979 dollars annually (assuming no off-setting adjustment through the elimination of tax shelters). Even this revenue loss would be offset significantly if governments were included in the list of eligible borrowers. For example, if half the borrowing represented government borrowing, the interest expenses of governments would be reduced by about $480 million 1979 dollars, so that the impact effect on the consolidated government account would be about $520 million.

What would be the effects on government revenues of a further broadening of eligibility? Note that government revenues would be subject to two offsetting influences. First, as real interest rates increased in the indexed market, lenders in lower marginal income tax brackets would be induced to move into the indexed market, thereby reducing the taxes they pay. However, the rise in real rates in the indexed market would also generate tax revenues payable by those already in that market.

Table 5 presents an illustrative calculation of the volume of unsheltered interest income which would eventually be transferred at different real interest rates, together with estimates of the associated government revenue loss. The maximum revenue loss is in the order of 1.8 billion 1979 dollars, reached at a real interest rate of 3.5 per cent in the indexed market.* In this example, further increases in real rates would increase tax revenues. What has happened is that, with a real rate of 3.5 per cent, all unsheltered lenders with marginal tax rates of 27 per cent or higher have been attracted to the indexed market. Since there is little unsheltered interest income held by individuals with marginal tax rates below 27 per cent, further increases in real interest rates will not attract much additional switching of debt investments until the real rate is increased up to the level at which sheltered investments will be switched (6.4 per cent in the illustrative case).

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* This result makes no allowance for any offset of losses in revenues by increases in interest rates in the regular market.

Table 5
Effects on federal and provincial revenues of indexing proposals at alternative real interest rates[a]
(millions of 1979 dollars)

Real interest rate	Volume of unsheltered interest income to be transferred[b]	Associated potential revenue loss[c]	Potential government spending offset[d]	Increase in government revenues from eliminating tax concessions[e]
0	2210.3	1038.1	967.0	752.0
2	3622.9	1365.7	1091.4	550.0
3	4890.2	1597.1	1140.0	384.0
3½	6134.3	1804.0	1221.1	228.0
4	6229.0	1749.6	1027.8	245.0

[a] Assuming nominal interest rate in the regular market is 16 per cent, and expected rate of inflation is 9 per cent.

[b] Assuming risk-neutral behaviour. These are average estimates from the table in the appendix.

[c] Federal and provincial revenue losses after all relevant debt is rolled over into indexed assets.

[d] Reduction in interest expense payments by governments if all indexed borrowing is done by governments.

[e] Estimated revenue impact of eliminating the $1,000 investment income exclusion and associated transfers from spouses.

While the illustrative numbers could be unrepresentative of the situation at the time of implementation or thereafter, they do reveal that the supply of funds curve will likely be S-shaped. At low (or negative) real yields, the response of debt-holders to small increases in real rates will be quite large. First the large volume of unsheltered interest-bearing assets held by high-income individuals will switch to the indexed market. Further increases in the real rates paid on indexed deposits will attract the not unsubstantial volume of unsheltered interest-bearing assets held by middle income taxpayers. Then will come a zone in which interest rates can move up without attracting much additional funds, until the rate reaches the level at which it is profitable to convert sheltered investments into the indexed market. At this point the supply response will again be large, particularly if institutional investors are allowed to participate on the lending side.

Considerations of inflation risk would of course complicate this analysis greatly. At the very short end of the market, however, lenders can pretty well avoid inflation risk in any case. So for short-term instruments our risk-neutral calculations should not be too wide of the mark. For medium and longer term instruments, however, the reduction in inflation risk would mean that lenders would be willing to switch to the indexed markets at somewhat lower real rates than indicated by the risk-neutral case.

The revenue effects shown in Table 5 are not extraordinarily large.* To give a point of reference, they lie within the range of revenues generated by measures proposed in recent budgets (November 1981, June 1982). Furthermore, these revenue costs will decline as inflation declines and as the positive supply-side effects of the new measures work their way through the economy. Hence short-term revenue effects do not represent a valid reason for refusing to broaden the eligibility of borrowers.

It is also worth emphasizing that there could be a direct offset on the expenditure side of the government account to the extent that governments themselves participate as borrowers in the indexed market. For example, if the federal and provincial governments were to monopolize the issue of indexed debt, so that all conversions by investors from conventional to indexed assets represented a conversion from conventional to indexed goverment bonds and treasury bills, the interest costs of servicing government debt would decline sharply. At the volume of funds converted at a zero real rate of interest, these interest savings would amount to an estimated 967 million 1979 dollars. The savings associated with alternative real rates of interest are shown in the third column of Table 5. These savings are not only substantial enough to reduce sharply the loss of tax revenues associated with the introduction of indexed debt, but they could be supplemented by tax savings from phasing out or limiting the $1,000 investment income exclusion. There would be no need for this tax shelter under a broad-based plan of indexed debt and RSIP's.

Estimates of the revenue incomes associated with eliminating this tax shelter and associated tranfers from spouses are shown in the fourth column of Table 5.

We are not proposing that governments establish a monopoly on the issue of indexed debt, but simply that they consider issuing it. The potential demand for indexed assets is large enough to justify broadening the list of potential issuers to include governments at all levels. The savings realized by government participation would be a benefit accruing to all taxpayers.

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* They also overstate the total revenue loss, in that no allowance is made for reduced carrying charges and reduced interest deductions by small-business borrowers.

If the list of eligible lenders were also extended to include life insurance companies and pension funds, the potential interest savings to government borrowers of indexed funds would probably be even larger than the figures shown in Table 5. These lenders currently face zero tax rates on investment income but have demonstrated an aversion to inflation risk. It is likely that insurance and pension fund lenders would purchase indexed debt instruments at values of real rates smaller than the difference between nominal rates and the expected rate of inflation - in order to take advantage of the inflation-hedge aspect of indexed debt. Their participation in the market would add a very large volume of loanable funds to the other sources of supply and help keep a ceiling on the level of real rates of interest. The advantages to governments of their participation would be twofold: real borrowing rates would be held down, and governments would not lose tax revenues by selling indexed debt to borrowers who were tax-exempt in any case.

Impact of Indexed Debt on Other Financial Markets

The introduction of indexed debt instruments will have repercussions on other financial markets to the extent that indexed instruments compete with or are substitutes for conventional financial assets and liabilities. The magnitude and extent of such repercussions may depend upon the size of the market for indexed instruments. A "small" indexed debt market, such as the $10 to $12 billion matched ITD-ITL market implied by the borrowing restrictions embodied in the White Paper, will probably have few important effects on other financial markets. One reason for this is that ITD's will likely have to offer either negative real rates of interest or small positive rates with non-price rationing in order to keep demands for ITD's at these low levels. Either way, the amount of funds withdrawn from conventional debt markets and converted into ITD's will be small relative to the overall size of these markets.

The most obvious substitutes for ITD's (to be issued with maturities of one year or longer) are conventional term deposits of comparable maturities. Doubtless the bulk of initial ITD's will simply be conversions from existing conventional term deposits. (In fact, this may be one way in which financial intermediaries choose to limit those to whom ITD's are issued, if non-price rationing is used.) Provided that such "swaps" do not transfer great amounts of funds from one lending institution to another, they pose no difficulties whatsoever. The financial intermediary will have replaced one kind of liability with another and will make an equivalent replacement with its assets; that is, it will replace a conventional small business or mortgage loan with an indexed counterpart. If those eligible to take out indexed loans are as restricted as presently proposed, there would be minimal effects on nominal interest rates paid on conventional deposits or on conventional small business and mortgage loans.

To obtain these kinds of minimal disturbances it is absolutely essential that all financial institutions which currently issue interest-bearing deposits and make mortgage or small business loans be permitted to participate in the market for indexed debt. Any type of financial institution that is prevented from participating runs the risk of losing depositors to intermediaries offering ITD's and borrowers to those offering indexed loans. These risks increase as the limitations on borrowing are relaxed. It is easy to imagine what might happen to the profits of, say, trust companies if they are excluded from participating in a program with few restrictions on borrowing indexed debt. Large numbers of both their depositors and borrowers would take their business to the indexed market - leaving the trust companies with much reduced scales of operation and at a competitive disadvantage. There is little question that participating in the indexed debt market must be open to all existing financial institutions that both issue deposits and make loans.

The discussion thus far has proceeded under the implied projections that (1) ITD's will be financed by swaps out of existing conventional term deposits and (2) the demand for indexed loans will be offset by an equal decline in the demand for conventional loans. Neither of these projections is likely to be perfectly realized, especially if the borrowing limitations currently proposed are broadened. Some ITD funds will no doubt be the result of swaps from other assets, such as government and corporate bonds foreign bonds, mortgages held by individuals, etc. The more lax the restrictions on eligible borrowers, the larger these inter-market swaps are likely to be. Will this not have adverse effects on nominal interest rates in these other markets? It is true that selling off other assets to invest in ITD's should force yields on those assets to rise and mean that new borrowers in these markets will face higher interest rates. But there is a strong reason for arguing that these effects are likely to be small even under an expanded program of indexed borrowing.

The yields on marketable assets traded in Canada are very strongly influenced by yields in the rest of the world, especially in the U.S. Any upward movement in yields on government and corporate bonds provoked by the introduction of ITD's is likely to stimulate an inflow of foreign investment funds which will limit, and possibly even eliminate, any rise in domestic interest rates. To realize that this is a powerful mechanism for mitigating the effects of ITD swaps, one need only review the close correlation that has historically existed between Canadian and U.S. interest rates. It is probably not possible for Canadian yields to differ appreciably from their U.S. counterparts for very long, at least in real terms.

The net effect of capital inflows is to replace Canadian ownership of marketable debt assets by foreign ownership - the same result that would occur if Canadians financed the purchase of ITD's by selling off foreign securities. There is likely to be little effect on domestic interest rates as a result of the capital inflows, but there may be some upward pressure on the Canadian dollar. It is impossible to estimate just how much the Canadian dollar might appreciate following the introduction of ITD's, but it would obviously depend on the scale of the indexed debt program. A small, restricted program would probably not have much effect in this regard. A liberalized, large-scale program might cause a more significant appreciation.

In organized debt markets with high degrees of international capital mobility, the risk that the introduction of indexed debt instruments might spark a rise in domestic interest rates appears to be small. However, a rise might occur in less organized markets, such as the markets for consumer loans, conventional small business loans, and mortgages. These instruments are not internationally traded and upward pressures on interest rates in their markets are not likely to be fully offset by international capital flows. How might such upward pressures arise? By the failure of our second implicit projection to be realized: that is, if the introduction of indexed debt stimulates a net increase in the demand for small business loans and mortgages.

Indexed debt instruments might easily lower the after-tax costs of borrowing sufficiently to stimulate a net increase in small business investment and housing construction; indeed, this is a major reason why the proposal was put forward. If investment increases, the demand for conventional loans will not decline by as much as the demand for indexed loans rises. To accommodate the net increase in loan demand without cutting back elsewhere, lending institutions will have to either ration conventional loans by raising lending rates or find some way to increase overall assets. The course taken by lending institutions in such an event will depend upon a great many factors, including their ability to draw ITD funds from other organized debt markets.

The final outcome of this scenario depends crucially upon the policy reactions of monetary authorities. At one extreme, policy makers may allow bank assets to expand sufficiently to negate any increase in conventional lending rates. At the other extreme, policy authorities may refuse to allow bank assets to rise and indexed debt will "crowd out" conventional debt via a rise in conventional lending rates. There are myriad possibilities in between and it would be futile to investigate them all. For argument's sake, let us confront the "worst" scenario, in which indexed debt fully crowds out conventional debt.

Would this be such a bad outcome? Not according to the underlying spirit of the White Paper. Under those circumstances, the introduction of indexed debt instruments would accomplish a transfer of resources to small businesses and new residential construction. Total production might or might not increase, but the inequities of the current tax system would be reduced - in the sense that some of the borrowers most penalized by the current tax treatment of interest income and expenses would gain relative to the rest of the economy. The point is that even if indexed debt does cause interest rates to rise in some competing markets - and this is not a foregone result - there are equity gains to be made from its introduction. The broader the scope of the program, the greater are these potential gains.

Is "Matching" Indexed Loans and Deposits Necessary?

The main benefits of ITD's will accrue to high tax rate individual investors, while the main benefits of indexed loans will accrue to low tax rate borrowers. The White Paper proposals limiting loan eligibility and requiring financial intermediaries to match indexed loans with deposits appear to be motivated by a desire to make sure that the lion's share of benefits accrue on the borrowing side of the market. Our estimates of the potential demand for ITD's tend to verify that this will indeed be the likely outcome. Low real rates of interest, possibly coupled with non-price rationing of ITD's, will limit the gains to lenders and subsidize low-tax rate small business borrowers and new home buyers.

We have already stated that, in our view, it is not appropriate to try to couple a major tax reform with a policy aimed at cyclically stimulating two currently depressed sectors of the economy. The proposal would be much more appealing in terms of economic equity and efficiency if the limitations on loan eligibility were relaxed, even though this might mean higher real rates of interest and larger short term gains to potential investors in ITD's. In fact, we will go so far as to state that a fully comprehensive indexing system is the "first best" solution to the problem of inflation-induced distortion in the tax system.

One thing that should definitely be a feature of any more comprehensive system is an elimination of the proposed requirement that financial intermediaries match indexed loans and deposits. The matching requirement, obviously part of the attempt to subsidize the small business and residential construction sectors, is likely to prove a serious obstacle to adoption of the White Paper proposals. The main reason for this is that the matching requirement allows the federal government to define the rules under which participating financial intermediaries will be able to operate. This would extend federal control to areas of financial regulation presently under provincial jurisidiction. Surely the provinces will object to this, and well they should.

It is probably the case that any provincial government has the right to prohibit any financial institution under its regulatory authority from participating in the indexed debt scheme. But it may be foolhardy for a provincial government to exercise this right, for to do so would place the affected financial institution at a competitive disadvantage vis-a-vis other intermediaries. It may well happen that one or more provinces will mount a challenge in the courts to test the federal government's right to encroach on their (presumed) authority. Whatever the outcome of such a challenge, it could hold up implementation of the indexing scheme for some period of time, if not indefinitely.

One way of sidestepping a possible legal battle would be for the federal government to drop the requirement that participating intermediaries match indexed loans and deposits. The government could simply state its proposed tax treatment for ITD's, for financial intermediaries, and for eligible borrowers of indexed loans, subject to any restrictions it might wish to place on eligible borrowers. The mechanics of making indexed loans and deposits would then be left to the financial intermediaries themselves. (And we have learned from past experience - the introduction of term deposits in the 1960s, swap deposits in the 1970s, etc. - that financial intermediaries are quite adept at handling new credit market instruments.) Without the requirement of matching, any intermediary could issue whatever quantity of ITD's it wished (or was able to attract in competition with other institutions) and make whatever volume of loans for which it could generate demand from eligible borrowers. Government intervention would be reduced and free market forces allowed to operate.

Apparently the drafters of the White Paper were concerned that this solution would not be likely to yield the kinds of subsidies to the small business and residential construction sectors that come with matching. However, it is not obvious that the final results would be any different. Risk-averse financial intermediaries might decide that some form of self-imposed matching was in their own best interests, in which case they would restrict ITD issues to keep them in balance with indexed loans. The issuance of indexed government debt would help financial institutions avoid inflation risk without a forced matching of ITD's and ITL's. Allowing indexed borrowing and lending between financial intermediaries would also facilitate voluntary matching. In any case, real interest rate outcomes under voluntary matching would be exactly what they would have been under forced matching - without the element of government interference.

Of course, some intermediaries may well find it profitable to issue more ITD's than indexed loans. In this case, real interest rates on ITD's would probably be higher than they would be under forced matching, but it does not follow that real interest rates charged on indexed loans would be higher as well. If lending institutions do not feel the need to match indexed loans and deposits, then the real rates of interest applicable to the two debt instruments are not likely to be as closely related as they would be under a forced matching scheme. There is nothing a priori inconsistent about an unmatched system leading to a favourable real interest rate schedule for indexed loans.

Since forced matching is likely to cause many legal and jurisdictional problems and does not necessarily contribute anything positive to the outcome of indexing debt instruments, we strongly recommend that it be eliminated from both the current proposal and any modified proposals that might be subsequently developed. The one possible undesirable outcome of eliminating forced matching is that it may provide lending institutions with a tax incentive to issue conventional deposits and make indexed loans; that is, to borrow at tax-deductible nominal rates and lend at tax-favourable real rates. This incentive is easily removed by making financial intermediaries subject to tax on real interest receipts plus inflation compensation received on indexed loans in excess of their indexed deposits. This would accord intermediaries the same tax treatment as that proposed for taxable individuals who borrow in conventional debt markets to purchase ITD's.

Registered Shareholder Investment Plans

The Registered Shareholder Investment Plan (RSIP) is the third new instrument proposed in the White Paper. Eligible equities held within these plans would be taxed on an inflation-adjusted accrual basis. Only accrued real capital gains would be subject to capital gains tax, and the full value of accrued taxable capital losses would be deductible against other incomes. The White Paper proposes no change in the existing exclusion from tax of one-half of capital gains and losses, on the grounds that rough parallel treatment with dividends (which are subject to a 50 per cent gross-up and credit) is thereby preserved. Only the common stock of companies listed on a Canadian stock exchange would be eligible for inclusion in an RSIP.

The White Paper estimates that the impact of RSIP's on general revenues would be considerably smaller than that of the ITD-ITL system. The federal revenue loss is estimated at only $100 million, but no indication is given of the timing of this loss.

In our view, there might well be no revenue loss (and perhaps even a modest revenue gain) in the early years of the RSIP program for two reasons. First, the existence of the RSIP's will encourage sales (or deemed sales) of securities into these plans, thereby speeding up the realization of capital gains and losses which have already accrued. Second, to the extent that the benefits of RSIP treatment are capitalized into the values of eligible securities, capital gains realized on the sale of such securities into (or outside of) the RSIP's will be increased. Both factors, together with the taxation of real net gains on an accrual basis, provide significant offsets to the exclusion of inflation-related gains from capital gains taxation. Over a period following the introduction of the RSIP's, therefore, these offsets could well wipe out the taxes lost from inflation adjustment. In the long run, of course, the RSIP's would presumably cause some reduction of tax revenues, particularly if inflation continues at moderately high rates.

Because real gains and losses from RSIP's would be taxed on an accrual basis, RSIP's will likely attract two types of equities:

- high dividend yielding common stocks (so-called blue chips) with zero or low anticipated real capital gains, and
- highly volatile stocks, for which the ability to utilize losses fully in the RSIP's is an attractive feature.

RSIP's would be less attractive havens for low-dividend, low-risk stocks, because of the taxation of the anticipated high real capital gains on an accrual basis. The equities of private companies and all senior equities (convertible or preferred stocks) are excluded by regulation.

We agree with the argument given in the White Paper that the introduction of RSIP's would reduce the cost of equity capital, with some stimulation of investment and savings as a result. As in the case of the ITL's, however, the restrictions on eligible assets will limit the supply side effects that would otherwise occur. The most serious limitation is the exclusion from RSIP's of equities of private companies (including small corporations). The only rationale for this is the problem of taxing such assets on an accrual basis. However, these assets could be taxed on a modified accrual basis, such that taxes are paid upon realization of a real capital gain, together with accrued interest over the holding interval. It would probably be necessary to restrict eligibility to arm's-length holdings of private companies in order to minimize tax avoidance problems.

In order to avoid the distortion of equity financing by firms, consideration should be given to making other bona fide equities (convertible stocks and perhaps straight preferred stocks) eligible for inclusion in the RSIP's. Those types of preferred and convertible equities which are really debt in disguised form may be excluded by appropriate regulations.

Finally, in order to avoid forced liquidation of RSIP assets to pay capital gains taxes, a deferral of tax (with accrued interest payable upon realization) should be available for these plans.

Conclusions and Recommendations

1. Some form of indexing of income from capital is highly desirable in order to mitigate inflation-induced tax distortions and to provide investment vehicles which reduce exposure to inflation risk.

2. The "first best" solution to these problems would be the adoption of a general inflation-adjusted accounting system for tax purposes. This would involve the indexing of all asset values to the general price level. Capital gains and losses, interest income and expenses, and capital cost and inventory expense allowances would all be measured henceforth in real terms.

   The White Paper asserts that design and administration complexities, windfall gains and losses upon implementation, and international complications rule out the adoption of such a system (pp. 14 et seq). However, we are not persuaded that a general system with appropriate modifications to deal with these difficulties is impossible.

   The feasibility of the general accounting approach should be thoroughly researched, perhaps by a Royal Commission.

3. If the general inflation accounting system is infeasible, the broad characteristics of the system proposed in the White Paper - the creation of three new indexed instruments, for loans, deposits, and equities - may be appropriate as a second-best alternative.

4. A number of specific limitations proposed in the White Paper do not appear appropriate. Most important are the limitations on eligibility for loans and the requirement that financial intermediaries must act as a conduit (and must match indexed loans and deposits). Unless these restrictions are relaxed at the outset or phased out within a reasonable planning horizon, there is a serious risk that the proposals will worsen rather than improve the allocation of capital.

5. The two principal reasons given in the White Paper for the limitations on the eligibility of borrowers are as follows:

- to limit the revenue cost of the new measures, and
- to provide maximum stimulus to sectors hard-hit by the current recession by ensuring that virtually all of the tax benefits be passed on to eligible borrowers, who are in the cyclically weak sectors.

In our opinion, neither point is valid.

6. Revenue losses from broadening the list of eligible borrowers would not be extraordinary, particularly if accompanied by a phase-out of the existing $1,000 investment income tax shelter and by participation by governments - as issuers of indexed treasury bills and bonds - in the borrowing side of the market.

In any case, tax revenues lost through this partial correction of the taxation of illusory income can easily be recouped by increased marginal tax rates (or by the elimination of certain tax expenditures). Since the benefits of indexing of deposits are concentrated in the hands of high-income lenders, modification or elimination of some tax shelters, or some move back toward the pre-November 1981 rate schedule, might be appropriate in order to maintain the vertical equity of the tax system.

Any disincentive effects of increases in marginal tax rates on work effort could be prevented by an earned income tax rate ceiling.

7. The use of the eligibility criterion for short-term cyclical stimulation

purposes is particularly inappropriate. The proposed measures would involve a fundamental change in the tax treatment of investment income. The introduction of these measures should not be used to provide cyclical stimulus, unless their temporary use in that fashion does not jeopardize further steps towards the broadening of the measures.

8. The government should not rush towards implementation of these measures simply to provide a quick stimulus to the housing and small business sectors, since other, more direct measures are readily available, and indeed are already in use. Whether to proceed directly to a broader implementation or to phase in the measures is an important issue, but any phased plan should be designed with the long-term objective of a tax structure with fewer inflation distortions in mind. With appropriate modifications, the White Paper proposals could represent the first phase of such a plan, but it is most important that the government make a commitment to develop a more general system.

9. The long-run objective should be to establish a system with few restrictions on access to either side of the market by Canadian resident borrowers and lenders, and with considerable flexibility regarding length of term, indexing provisions, and eligibility of assets.

10. Since the system will in any event create a two-tiered market for debt and a flexible inflation tax shelter for equities, it is important to ensure that participants cannot operate in both markets so as to artificially reduce taxes - for example, by borrowing in the conventional market to purchase indexed deposits or to contribute to RSIP's.

    The limitations on borrowing to finance aquisition of ITD's and RSIP's proposed in the White Paper are too restrictive and yet ineffective. Real interest costs in principle should be deductible for investments in either indexed deposits or in RSIP's. However, establishing a system which prevents back-door borrowing to finance acquisition of assets protected by indexing will not be easy. A revision of the much-criticized November 1981 budget limitations on interest deductibility would therefore appear desirable. For example, carrying charges could be deemed first to apply to indexed assets (with only the real proportions of interest expense deductible), with the remainder applicable to other assets. Alternatively, carrying charges could be pro-rated across indexed and ordinary financial assets on the basis of their acquisition costs. Real interest costs on the portion allocated to indexed assets would be deductible, and all interest costs of the portion applicable to non-indexed assets would be deductible.

11. Another reason to proceed rapidly, once the new instruments are introduced, to a more general system than that proposed in the White Paper is to prevent the extension of federal control over all financial intermediaries. Ideally, the federal government should set the rules regarding tax treatment and allow financial markets to do the rest. To establish designated classes of eligible borrowers, and to require an exact matching of loans and deposits, is to establish a strong federal regulatory position vis-a-vis all participating financial institutions. This presumably would not be acceptable to the provinces.

12. One advantage of indexing to the general price level is that it reduces inflation risk for most lenders (the exception being savers who are saving to purchase specific assets, for example, savers contributing to RHOSP's). However, many borrowers, and some lenders, would nevertheless bear relative price risks under general price level indexing. These risks could be lessened by indexing to specific asset price indices (or to a combination of general and specific price indices). For example, home buyers would bear less risk if their mortgages were indexed to a housing price index rather than to the CPI. Similarly, purchasers of producer durable equipment would bear less risk if their loans were indexed to either an equipment price index or to their industries' selling price indices rather than to the CPI.

The government should permit whatever indexing arrangements lenders and borrowers voluntarily enter into. However, the tax exempt and the tax non-deductible portions should be correspondingly limited by the general rate of price inflation.

13. The CPI would appear to be the obvious price index to use, in that it is already in use for tax and transfer indexing and is incorporated in many private contracts. However, this price index has a number of limitations. Being a fixed weight index, it tends to overstate inflation. The inclusion of mortgage interest in the price index is inappropriate. Volatile food and energy prices have too great a weight, and the index does not include most depreciable business assets.

    The use of an alternative index for the definition of capital income should be thoroughly researched before the proposals are implemented.

14. Earlier we stated the case for eliminating restrictions on eligibility for borrowers and lenders. It is particularly important not to preclude participation of pension funds and life insurance companies, which would be attracted by the reduction in inflation risk entailed by long-term indexed instruments. It is also important to have governments themselves participating in the indexed market, particularly by issuing medium and longer term debt. Federal and provincial governments are in a unique position in that their real earning potentials are virtually fully insulated from inflation. Hence issuing indexed debt would actually reduce inflation risk* borne by governments and hence by taxpayers.

    Furthermore, indexed government debt would enable governments to lengthen the term of the debt, thereby increasing the potential for debt management policy to play a more effective anti-inflationary and counter-cyclical role.

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* The risk borne by governments is related to unanticipated declines in the rate of inflation, which would reduce nominal tax revenues and leave nominal interest costs on long-term debt unchanged. Issuing indexed debt would eliminate this risk.

Finally, the issuance of indexed debt and the construction of government accounts on an inflation-adjusted as well as on a conventional basis would contribute to improved public understanding of fiscal policy.

15. The class of assets allowable in RSIP's should be broadened to include all bona fide listed equities (including genuine* preferred and convertible stocks of firms whose common shares are listed). If the taxation of capital gains on an accrual basis were modified, then the RSIP's could be broadened to include the equities of all Canadian enterprises. For example, capital gains on listed equities could remain on an accrual basis, with other assets put on a realization basis (with interest payable on the tax deferral at the time of realization).

APPENDIX: ESTIMATING THE POTENTIAL DEMANDS FOR ITD's AND THEIR TAX REVENUE IMPLICATIONS

Estimates for unsheltered interest-bearing assets held by Canadian taxpayers described in the text of the paper were prepared using published data from the 1981 edition of Taxation Statistics (Revenue Canada). These data report total taxable income (by source), tax liabilities, and deductions for taxpayers within various reported income classes. The data apply to the 1979 taxation year and are grouped by gross reported income class.

For example, all taxpayers reporting gross incomes in the $17,500-$18,000 range in 1979 are grouped together. The data show (among other items) total interest income claimed by taxpayers in this group, the total value of their dividends and capital gains, the total value of their investment income not subject to tax under the $1,000 investment income exclusion, and the total of their taxable incomes.

Dividing total taxable incomes by the number of taxpayers yields average taxable income for taxpayers in the $17,500-$18,000 gross income class. In this case the average is $11,692. Based on the federal and provincial tax rate schedule currently in effect in Ontario, a taxpayer with this taxable income in 1982 will face a combined marginal tax rate of 0.31. Thus the unsheltered conventional debt assets held by taxpayers in this income class will represent part of the potential demand for ITD's whenever a combination of nominal interest rate, inflation expectations, and the real rate of interest on ITD's yields a pivotal tax rate of 0.31 or lower.

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* Preferred shares which have the principal characteristic of debt should be excluded by appropriate regulations.

To estimate the value of unsheltered conventional debt assets held by this group of taxpayers in 1979, the data on interest incomes were utilized. Some portion of the $128.5 million of total interest income reported by this group must have been unsheltered, since the figure exceeded the $50.6 million total deduction claimed under the $1,000 investment income exclusion. But how much? It is not possible to obtain a precise answer to this question, but it is possible to compute upper- and lower-bound estimates. A lower-bound estimate is obtained by assuming that the entire $50.6 million investment income exclusion was applied to interest income. This puts the minimum value of unsheltered interest income earned by this class of taxpayers at $77.9 million, which is the minimum amount of interest income earned by this group that could be subject to tax at full marginal rates (a 0.31 rate under the current tax schedule for a resident of Ontario).

An upper-bound estimate of unsheltered interest income is obtained by assuming that taxpayers first use the $1,000 investment income exclusion against dividend income and taxable capital gains and, only after having done so, apply the residual exclusion to interest income. For taxpayers in the $17,500-$18,000 gross income class, total dividends and taxable capital gains amounted to $27.6 million. Deducting this figure from $50.6 million leaves $23 million as the minimum amount of interest income sheltered by this exclusion. Hence an upper-bound estimate of unsheltered interest income for this group is $105.5 million (the difference between total interest income and this $23.0 minimum exclusion).

The lower- and upper-bound estimates for unsheltered interest income were converted into a corresponding range of estimates for unsheltered debt assets under the assumption that the average nominal interest yield (before tax) in 1979 was 10 per cent (approximately equal to the average nominal rate of interest in that year). At a 10 per cent yield, the lower-bound estimate for unsheltered debt assets is simply ten times the value of the lower-bound estimate of unsheltered interest income and similarly for the upper-bound values. Thus we estimate that taxpayers in the $17,500-$18,000 gross income class held somewhere between $779 and $1,055 million in unsheltered conventional debt assets in 1979.

Similar computational procedures were applied to the other income classes reported in Taxation Statistics. To obtain upper- and lower-bound estimates for the potential demand for ITD's, we simply cumulated estimated values of unsheltered debt assets across appropriate income classes. For example, in the case where the pivotal tax rate is 0.25, the potential demand for ITD's is measured by the aggregate of unsheltered debt assets held by all taxpayers who had 1979 taxable incomes which would be subject to a combined marginal tax rate of .25 or higher under existing tax rate schedules.

Note that the aggregation was based on current, as opposed to 1979-based tax rate schedules. We thought it more appropriate to use current schedules in light of the rather significant reductions in marginal rates for high-income taxpayers introduced in the November 1981 federal budget. The use of 1979 tax rate schedules would have led to overestimates of the potential demand for ITD's in a number of cases.

Table A.1
Unsheltered interest income by income class

Income group/a/	Combined marginal tax rate /b/	Unsheltered interest income (millions of dollars)		
		Min./c/	Max./d/	Average
50K & over	50%	1032.5	1,153.8	1093.2
30-50K	44%	952.1	1,282.1	1117.1
20-30K	37%	1084.7	1,740.4	1412.6
18-20K	34%	307.1	424.4	365.8
13.5-18K	31%	790.5	1012.5	901.5
10-13.5K	28%	694.9	820.8	757.9
7-10K	27%	456.5	515.9	486.2
5-7K	25%	83.6	99.1	91.4
4-5K	24%	2.7	3.9	3.3
1-4K	9%	0.4	0.9	0.7

a Assessed income.
b Combined federal and Ontario 1982 rates, applied to 1979 tax brackets.
c Minimum estimate is total interest income reported on taxable returns, less the investment income deduction.
d Maximum estimate is total interest income less the excess of the investment income deduction over taxable capital gains plus taxable dividends.

Commentaries

Myron J. Gordon

The objectives of the tax changes proposed in the White Paper are to: (1) reduce the interest-rate risk on long-term debt to both lenders and borrowers and reduce the call risk to lenders by restoring long-term credit; (2) reduce the heavy burden of current interest rates to homeowners and small business persons who cannot deduct interest as an expense for income tax purposes; and (3) improve the performance of the economy by stimulating the construction of new homes.

Unfortunately, the form that these proposed tax changes appear to be taking can accomplish little or nothing in achieving these objectives. Instead, they are much more likely to: (1) accomplish nothing by way of risk reduction in the extension of credit; (2) provide only a very small reduction in the interest rate charged to homeowners and small business persons; (3) provide a very large tax reduction to wealthy persons who invest in short-term loans; and (4) hit the already battered manufacturing, resource and other producing sectors of the economy by sharply reducing the relative attractiveness of holding common stock. It is the purpose of these comments to demonstrate the truth of these allegations and to suggest how the proposed tax changes might be implemented in order to realize the stated objectives of the White Paper.

In substance, the tax changes proposed in the White Paper would introduce indexed term deposits, with the interest rate decomposed into two interest rates: one taxed and the other tax-free. The taxed rate would be set when the term deposit was issued and the interest would be paid annually, while the tax-free rate would be set at the end of each year and would be equal to the realized rate of inflation for the year; this

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tax-free interest would be added to the principal. On a one-year term deposit, both types of interest would be paid at the end of the year, and they would differ only in when their rates were fixed and in their tax status. But on a five-year term deposit, only the taxable interest would be paid annually; the interest determined by the inflation rate would not be paid until the end of the five years. To illustrate, in a year when the taxed rate of interest was 3 per cent and the inflation rate proved to be 12 per cent, the holder of a five-year deposit would be paid only 3 per cent of the principal (augmented by inflation in the previous years) and have 12 per cent added to the principal, whereas the holder that year of a one-year term deposit would be paid 15 per cent at the end of the year.

The White Paper and the various comments on it do not indicate that the term of the indexed deposits would be restricted to five or more years. In view of the attractiveness of one-year deposits, we can presume that most or all of the deposit money would be for one year. In that event, the proposed indexing of term deposits would do little to reduce the considerable interest-rate risk to which both lenders and borrowers are currently subject on long-term credit with a fixed nominal interest rate. To avoid the risk of very uncertain future inflation rates, long-term credit has practically disappeared. On the whole, only one-year term deposits are being extended, and indexing these would not provide any real risk reduction to either lender or borrower. To illustrate, the nominal interest rate on a one-year ordinary term deposit could be decomposed into a real interest rate plus a premium equal to the expected rate of inflation, which, over the course of one year, would be most unlikely to differ from the actual rate of inflation by more than 3 per cent. Since an asset with a one-year return that could depart from the expected rate of return by no more than 3 per cent would involve very little risk, indexed term deposits would accomplish very little by way of risk reduction. In fact, given the tastes of lenders and borrowers, it is likely that they would find an ordinary one-year term deposit less risky than an indexed one. In the former case, the nominal amount of interest to be paid or received is known at the start of the year, while in the latter case, the nominal amount is only discovered at the end of the year.

While long-term loans with an indexed interest rate have significantly less interest-rate risk than long-term loans with a fixed interest rate, they have no lower interest-rate risk than ordinary one-year loans. The advantage of long-term over short-term loans is that they reduce call risk to borrowers, but the other side of the coin is that they also raise default risk to lenders. However, these considerations are important only regarding loans to industry - not mortgage loans to homeowners. Indexed term deposits and loans, even if made for five years or more, would provide homeowners with little risk reduction.

The tax changes proposed in the White Paper would result in some mix of (1) reduced income taxes for wealthy persons who buy indexed term deposits and (2) reduced interest rates for homeowners with low-to-median incomes. In the current economic environment it seems extremely undesirable to give large tax reductions to wealthy persons who put their money in term deposits, and the White Paper makes clear that the government's objective is to have the mix favour lower interest rates for homeowners.

To see what the mix would be, first consider the illustrative calculations on page 77 of the paper by Jump and Wilson. Under their assumption of an interest rate on ordinary term deposits (OTDs) of 16 per cent and an inflation rate of 12 per cent, a person in the 50 per cent tax bracket who purchases an OTD would have a nominal post-tax return of 8 per cent and a real post-tax return of -4 per cent, i.e., the nominal 8 per cent less the 12 per cent inflation rate. Since interest on an indexed term deposit (ITD) would be tax-free to the extent of the inflation rate, it would be no more or less attractive than the OTD, if its taxable interest rate were minus 8 per cent.

Now assume that persons in the 50 per cent tax bracket were given an inducement of 200 basis points to switch from OTDs to ITDs. Their taxable interest rate set at the start of the year would then be -6 per cent, and the nominal interest paid on their ITDs would be 12 per cent minus 6 per cent, or 6 per cent. The interest cost to the borrower would be much lower than on money obtained from OTDs: 6 per cent plus a loading charge by the financial intermediary versus 16 per cent plus the same loading charge.

At first glance, it would seem great to have the interest rate paid by homeowners with low-to-medium incomes reduced from 16 per cent plus loading to 6 per cent plus loading. However, the demand for such loans would be far in excess of the supply. The demand could be restricted by limiting such loans to homes purchased after the law went into effect, but that would infuriate hard-pressed homeowners who were excluded, and it would seriously distort the market for homes. The alternative would be to broaden the eligibility for indexed loans and to increase the supply of indexed deposits, but the latter would require raising the interest rate paid on the deposits. The anachronism of having a negative taxable interest rate on a term deposit also makes it quite likely that the indexed term deposits would be issued with a positive taxable interest rate. If this rate were set at only 2 per cent, the nominal post-tax return to a person in the 50 per cent tax bracket would be 13 per cent, a figure that compares very favourably with the nominal post-tax return of 8 per cent on an ordinary term deposit. The interest cost to the borrower of this money would be 14 per cent, i.e., 2 per cent plus 12 per cent, which is only 200 basis points lower than the cost of money obtained through ordinary term deposits.

In short, the pressure to make low-cost money from indexed deposits available to all homeowners would materially raise the interest rate on those deposits. Thus we see that practically the entire benefit to be derived from the tax reductions proposed in the White Paper would go to high-income lenders, and very little would flow through to homeowners. Although the rise in the interest rate on indexed term deposits would draw people in lower tax brackets into them, their tax reductions would be small.

Let us turn now to the impact that indexed term deposits would have on the overall economy. The effect of any material rise in nominal post-tax interest rates would most certainly be unfavourable. Wealthy persons would change the mix of their portfolios away from common stocks toward term deposits, because the dividend yields provided by common stocks are currently far lower than the high rates on ordinary term deposits, and because the prospects now offered by stocks for appreciation are very poor. In fact, capital losses on common stocks have been so massive over the past few years that one may well wonder why investors have continued to hold them. There are two reasons: (1) dividends and capital gains are treated more favourably tax-wise than interest income; and (2) there is some chance, albeit a very small one, that capital gains on common-stock portfolios will be large enough to provide investors with real post-tax returns that are positive. However, if wealthy investors were given an increase in the nominal post-tax interest rate on term deposits from, say, 8 per cent to 14 per cent, and if their real post-tax return were guaranteed to be positive, then they would shift in great numbers out of common stocks and into term deposits. The slight improvement in the tax treatment of common stocks proposed in the White Paper would do little to moderate this shift, which would be yet another blow to already staggering corporations in the manufacturing, resource and other producing sectors of the economy. Severely depressed earnings before interest expense and excessive debt ratios have already pushed many of these corporations to the brink of insolvency. A further fall in their stock prices due to a movement out of common stocks would make it even more difficult for them to reduce their debt ratios.

In conclusion, we have seen that none of the objectives of the White Paper would be likely to be served well by the proposed changes in the taxing of interest income. However, the primary purpose of the White Paper - to reduce the heavy burden of high interest rates to homeowners with low-to-medium incomes - could be realized simply and effectively by introducing a tax-free term deposit rather than an indexed term deposit that has a component of its interest that is tax-free. Designated financial institutions could be authorized to issue these tax-free term deposits, and the spread between their interest rate and the rate on taxable term deposits could be fixed by government. For example, if the rate on taxable term deposits were 16 per cent, and if the spread were set at 6 per cent, the rate on the new tax-free deposits would be 10 per cent and persons in the 50 per cent tax bracket would have an inducement of 200 basis points to hold the tax-free deposits. Thus, by raising or lowering the spread, the government could influence the demand for tax-free term deposits and hence the supply of money for homeowners at the lower tax-free rate. The spread could be fixed annually or semi-annually.

The money obtained by the financial institutions from the issue of tax-free term deposits could be allocated equitably among all homeowners. The institutions could be required to give each homeowner an interest rate equal to an average of the taxable and the tax-free rates, with the average based on their supply of tax-free funds relative to the demand for mortgage money. It is important to note that this benefit to homeowners would be confined to those with low-to-medium incomes. Wealthy homeowners would continue to avoid home mortgages so long as the interest paid on a mortgage cannot be deducted from income for tax purposes.

C. K. Marchant

Indexed Term Loans and Registered Shareholder Investment Plans: Impacts on Business Financing and Investment.

SUMMARY INTRODUCTION

The purpose of this paper is to examine some of the practical implications of:

- Indexed Term Loans (ITL's) to small businesses, farmers, and fishermen.

- Registered Shareholder Investment Plans (RSIP's) for indexed tax treatment of common shares of companies listed on a Canadian stock exchange.

The impact of these proposals on business financing, particularly for smaller and medium-sized companies, is of particular concern.

Inflation and the Taxation of Personal Investment Income, a White Paper issued in conjunction with the June 28, 1982 Budget, lists the following objectives for ITL's and RSIP's respectively:

- To reduce the cost of debt for small businesses, farmers, and fishermen.

- To enable businesses to raise new risk capital by way of equity investment.

The present paper concludes that the proposals will contribute little to either objective and are in fact inferior techniques for advancing the

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stated purposes. Concern is expressed that these proposals represent a new departure: more direct government intervention in the detailed structuring and allocation of private savings and investment flows.

Indexed term loans are only likely to be attractive to small businesses which are consistently unprofitable for income-tax purposes. Income-tax-paying businesses would prefer conventional loans, even at high rates. The reason is that indexed inflation-increments, being non-deductible, must be met from tax-paid dollars, increasing the tax cost of indexed borrowing. The higher the rate of inflation, the more unattractive indexed term loans will be to profitable businesses - the opposite of the result intended. In part, this arises because no offsetting changes, reflecting the impact of inflation, are proposed for the deductible depreciation of assets.

The Small Business Bond for companies in financial difficulty and the interest rate subsidy/Small Business Investment Grant announced in the June 28, 1982 budget are superior techniques for reducing debt costs to qualifying small businesses. However, these programs leave large categories of enterprises unassisted.

Because it would be confined to common shares of stock-exchange-listed companies, the Registered Shareholder Investment Plan would benefit fewer than one-half of one per cent of business enterprises in Canada. The remainder would find it harder to raise capital. As to shares in companies that would be eligible, the proposal would primarily affect trade in those shares that were already issued and outstanding, rather than in new equity issues that would expand corporate investment. Moreover, the proposal would impair the market for listed preferred shares and probably encourage dividend-paying common shares rather than those primarily offering the prospect of capital appreciation.

In terms of broad stimulative effect and compensation for inflation, straight removal of capital gains tax on corporate shares would be both administratively simpler and better received by the investment community. Capital gains on shares held by individuals is a relatively low-yielding tax in any case, and common shares have performed poorly in relation to inflation in the last decade. If there is a determination to proceed with capital gains indexation, the program should be considerably broadened, both in the classes of assets covered and in related areas such as access to indexed term loans for share acquisition purposes, and combined indexation of dividend income and capital gains. Some of the features of listed companies can be approximated for private companies through minimum numbers and proportions of arm's length shareholders, or through qualifying certain types of indexed preferred shares. Gains should be exposed to tax on realization, rather than on an accrual basis as proposed in the White Paper.

Other approaches to enhancing corporate liquidity could be taken, such as current value accounting for capital cost allowances, or tax credits for new equity investments.

Both the ITL and RSIP programs would, as proposed, introduce significant distortions. They also raise concerns about the proliferation of tax-registered investment plans resulting in growing government structuring and allocation of private savings and investment. The implications of such a trend should be carefully studied before such proposals are implemented.

INDEXED TERM LOANS TO BUSINESSES

The White Paper proposes special tax treatment of indexed term loans (ITL's) for which certain borrowers would be eligible where the loans were made for the purpose of acquiring defined categories of assets. That is:

- individual purchasers of new homes;
- small businesses, farmers, and fishermen purchasing new depreciable property.

Both types of loans would be made from segregated funds raised by eligible financial institutions through new deposit instruments proposed in the White Paper, the so-called indexed term deposits (ITD's).

This paper focuses on the ITL program for small businesses, farmers, and fishermen.

Eligible depositors and lenders

Funds for ITL's are to be raised from indexed term deposits. These instruments would be eligible for tax-free treatment of the inflation increment as determined by the index used, with only the real interest being exposed to tax. In principle, this would represent fairer tax treatment for individual investors in ITD's, or at least for those not adequately compensated through the interest income exemption (maximum $1,000). ITD's would have to be for a minimum term of one year.

The restrictions on ITD's would have implications for both suppliers of funds and business borrowers through ITL's. Indexed tax treatment of deposits would be extended only to individuals, not to corporate suppliers of funds. This would restrict the potential deposit base, and discriminate against corporate depositors and individuals whose liquid assets were held in corporate vehicles.

Furthermore, only "eligible financial institutions" would be allowed to market ITD's and make ITL's. These are referred to in the White Paper as "banks, trust companies, caisse populaires and other savings institutions", but they are not further defined. Presumably, Quebec savings banks and credit unions are included. Perhaps eligibility for membership in the Canada Deposit Insurance Corporation (which insures deposits up to $20,000 per depositor per institution) is the test envisaged by the authors of the White Paper.

In any event, the White Paper substantially confines the categories of those eligible to receive ITD's and make ITL's:

- Direct ITL's by individuals. Individuals could not make ITL's directly to small businesses (or mortgagors). They could only lend on a tax-protected indexed basis to eligible financial institutions. For example, an individual could not lend or a borrower borrow on an ITL basis between the ITD-ITL spreads offered by "eligible financial institutions". A borrower could not arrange an ITL directly with an individual even when there was an individual ready to lend and the borrower had been turned down by eligible financial institutions.

- Corporations. Corporations (other than eligible financial institutions) could not lend on a tax-protected indexed basis either through ITD's or by making ITL's directly. This prohibition would include corporations that may be in the business of lending, but that are not savings institutions - those that raise the funds they lend out from banks, the money market, their own funds, or other non-deposit sources. Were these lenders allowed to participate, an anomaly would exist in their tax treatment: they could deduct the full interest costs of conventional funds borrowed while being taxed only on the real interest component of ITL funds loaned out. In any case, this prohibition would exclude some important term lenders in both the mortgage and business loan sectors.

- Tax-exempt financial institutions. Certain other categories of financial institutions may be excluded from eligibility, depending on its precise definition. For example, tax-exempt institutions such as pension funds would not be eligible to hold either ITD's or ITL's. However, so long as conventional interest rates were higher than real ITL-ITD interest rates plus the indexing rate, holding the new instruments would bring them no financial advantage. In time, however, pension funds might come to prefer indexed instruments as a better way to help fund their liabilities, especially if those liabilities (for example, pension benefits) were themselves indexed. Were the indexed-instrument market to gather strength, it would be unfortunate if such institutions were discouraged from participating by the tax system. (By virtue of corporate taxation, tax-exempt status tends to make debt more attractive than equity.) However, tax-exempt institutions could be making indexed loans now, without any changes required in the tax system. Indeed, if the interest rate on such loans were specified in terms of an index plus a "real" interest rate, and if both were fully deductible (but tax free to the tax-exempt lender), indexed loans outside the ITL scheme could be more attractive to borrowers than ITL's.

- Insurance companies. Depending on the definition of an eligible financial institution, insurance companies (life, property, and casualty) may be excluded. The development of indexed programs (for example, indexed life insurance policies) by these and other financial institutions may depend on the broader development of the indexed debt instrument market. At the same time, they are important channels of savings and investment.

- Federal Business Development Bank. It is not clear whether the Federal Business Development Bank will be authorized to offer ITL's.

Although in a distinctive position among financial institutions as a federal Crown corporation, the FDBD is an important lender to small business, especially where loans are not available from private financial institutions on reasonable terms. Where an ITL would be more attractive to a small business borrower than a conventional loan, it would be desirable for the FDBD to be able to structure loans in an ITL form.

Restricted access to indexed term deposits would be matched by restrictions on the types of loans which could be made from ITD funds. These matching requirements could in practice create significant distortions draining funds away from other classes of investment, necessitating rationing of ITD's; or, on the lending side, forcing the creation of additional government or other eligible debt instruments to cure the imbalance. These issues are discussed further in the final section of this paper.

Eligible Business Borrowers

The White Paper proposes that business ITL's be available only to small businesses, including farmers and fishermen. How these categories would be defined is not made clear.

The rationale offered for confining the benefits of the ITL program to small businesses, farmers, and fishermen is that these sectors are in particular need of the interest rate relief which the ITL program is presented as offering. The proposition that small businesses, farmers, and fishermen, however defined, are those most in need of interest rate relief is, of course, a highly debatable one. There are many larger businesses, and many other sectors, seriously hurt by persistent high interest rates.

The definition of corporate small business (including farmers and fishermen) most likely to apply under the ITL program is that used in the Income Tax Act for defining eligibility for the small business deduction: a Canadian-controlled private corporation all or substantially all of whose assets are used to produce active business income (distinguished from, for example, passive investment income), with taxable income limits of $200,000 per year, or a cumulative deduction account of $1,000,000 (cumulative earnings at the small business tax rate). This definition is also used for the Small Business Bond (SBB), successor to the Small Business Development Bond (SBDB), and the new Small Business Investment Grant (SBIG) program announced on June 28, 1982. Such special programs are extended to unincorporated small businesses, farmers, and fishermen where the programs are not being taken advantage of by a related incorporated business.

The Small Business Bond provisions deserve comparison with the ITL proposals as they would apply to small businesses. The Small Business Bond (SBB) program is scheduled to expire on December 31, 1982, although the need it caters to, significantly less expensive lending costs for small businesses in financial difficulty, will not. It is likely the government envisages the ITL program as a substitute for the SBB provisions when they expire.

The essence of the SBB is that "interest" costs are treated as dividends by both the borrower (no deductibility) and the lender (eligible for the dividend tax credit). The advantages of this partial tax exemption of "interest" earnings are reflected in significantly lower interest costs to the borrower. At the present time, SBB rates are in the range of 10 to 12 per cent per annum.

The origins of the SBB lie outside the small business sector. In the late 1970's, tax advisers to banks and large corporations recognized procedures under the Income Tax Act that permitted corporate loans to be structured such that interest costs were received by the lender as dividends eligible for dividend tax credits, although the costs incurred in raising deposit funds remained deductible. This resulted in substantially lower interest rates to borrowers in a loss or loss carry-forward position for tax purposes and enabled banks and others to lend on a tax-exempt basis.

This lending technique was attacked by changes in the budget of December 11, 1979, but it was reauthorized on a temporary basis for small businesses in the Small Business Development Bond (SBDB) program. Both changes were reintroduced in the April 21, 1980 Economic Statement.

The SBDB program permitted tax-exempt lending to small businesses acquiring new assets for expansion purposes in loan amounts between $10,000 and $500,000 on one to five year terms. The SBDB was phased out and the SBB program introduced in the November 12, 1981 budget. SBB's may be issued only by small business corporations in financial difficulty (that is, in default or about to be in default and unable to refinance on any other basis). The SBB program was also extended to unincorporated businesses that are not related to an SBDB or SBB corporate issuer. The November 12, 1981 budget also set new deadlines for issuing SBDB's (January 31, 1982) and SBB's (December 31, 1982).

In place of the SBDB program, the June 28, 1982 budget announced a Small Business Investment Grant (SBIG) program. Under this two year program (a shorter time if ITL's are substituted), the federal government will pay up to 4 percentage points of the interest cost of borrowings by small businesses (defined as in the SBDB program) where the loans are to acquire new depreciable property for active business use or to finance expenditures on scientific research. The 4 per cent pay-down will be lessened to the extent that federal or other assistance reduces the interest rate on such loans to 12 per cent or less. Loans under the SBIG program would otherwise be arranged and administered through established financial institutions, which would be required to certify eligibility of loans under the program. The SBIG converts the SBDB from a tax-expenditure to a grant program, while lowering certain benefits to the target clientele.

The SBDB program and the SBIG program which replaces it are not identical. The SBIG program is wider than SBDB in including scientific research expenditures, but narrower in excluding land. Interest costs net of the interest rate subsidy are deductible by the borrower under the SBIG scheme, whereas SBDB costs are not - a feature of particular advantage to borrowers who are profitable for income tax purposes. It is expected that SBIG subsidies will be paid on a current basis, while SBDB advantages to the lender are to some extent deferred.*

The effect of both the SBDB and SBB provisions has been to allow eligible borrowers to obtain substantially lower interest rates. The SBIG program will have a similar, though smaller, effect. As noted, the anchor definition of small business for all three programs is eligibility for the incorporated small business tax rate (approximately 25 per cent as opposed to the standard corporate rate of approximately 50 per cent on taxable income), though eligibility is also extended to unincorporated businesses unrelated to corporate issuers of SBDB's or SBB's. Again, the essential eligibility criteria for the small business rate are that a given business

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* It should be noted that there are related provincial government programs affecting some of the same sectors covered by SBIG and ITL. In particular, the Ontario Farm Adjustment Assistance Program provides up to a 5 per cent pay-down of interest costs to 12 per cent on outstanding floating rate term loans.

- be a Canadian controlled private corporation;
- have all or substantially all its assets involved in earning active business income;
- have taxable income within the annual maximum eligible for the small business tax rate (now $200,000, formerly $150,000) and a cumulative deduction account (cumulative earnings at the small business tax rate) of less than $1,000,000 (formerly $750,000).

The ITL program would thus exclude all corporations not eligible for the small business rate, because they are not Canadian controlled, or because they are not private corporations, or because their assets are not substantially employed in earning "active" business income, or because their earnings exceed the maximums for the small business tax rate.

As will be seen, ITL's are unlikely to be attractive to profitable borrowers in either tax bracket. However, it is unclear why eligibility for ITL's should be thus confined. To do so implies that the tax system has a right to tax capital in an inflationary environment, subject only to limited exceptions. This converts the income tax to a wealth tax for other than the limited category of exceptions. That is wrong in principle. While the present tax arrangements amount to a tax on capital, at least lenders and borrowers should have the choice.

Impact on borrowing costs to small business

In the last decade of persistent inflation, lenders have in general been penalized and borrowers advantaged by the negative or historically low real interest rates which have prevailed. In the last two years, approximately, real interest rates have been high, hurting borrowers. In many cases, lenders have nevertheless earned negative real returns on an after-tax basis because taxes have been levied on full nominal rates rather than on real interest rates.

The ITD and ITL proposals would ensure that lenders through those instruments did not assume a general inflation risk, although much would depend on the index chosen. Borrowers under these programs (deposit takers in the case of ITD's) would be required to maintain the real value of the lender's (depositor's) principal in accordance with the indexing formula spelled out in the loan/deposit contract. In effect, the risk would be staked on the reliability of the indexing formula chosen as a measure of the real impact of inflation. This would apply to both borrowers and lenders.

Lenders/depositors would receive the inflation increment tax-free. Only the real interest rate received would be taxed. Assuming the reliability of the indexing formula used in the absence of default by the borrower, for any positive real interest rate under the new instruments, lenders/depositors would earn a real after-tax return.

There is a major implication for borrowers, however. Since only the real interest rate is deductible as a business expense, the inflation increment when paid must, like repayment of loan principal, be met from tax-paid dollars, either after-tax earnings or capital. Approximately, the higher the inflation rate, the higher the pre-tax dollar cost to a borrower of an indexed loan by comparison with a conventional loan.

This outcome is illustrated in Table 1*, which assumes a $100,000 loan and identical real interest and inflation rates for both conventional and indexed term loans. As the table shows, a profitable borrower would prefer a similarly structured conventional loan to an indexed loan unless the difference in real interest rates compensated him for the increased dollar tax cost of the inflation increment. In the example in the table, a profitable borrower would require a negative interest rate under an indexed loan, or a conventional loan rate in excess of 20 per cent (real interest rate of 8 per cent) for the indexed arrangement to be the more advantageous choice.

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* This and succeeding tables make simplifying assumptions for ease of illustration. For example, corporate tax rates are rarely exactly 50 per cent and 25 per cent. In Ontario, the small business tax rate has been temporarily, and significantly, lowered by the most recent provincial budget. Investment tax credits and other special tax provisions (such as for scientific research expenditures) are ignored. A 20 per cent capital cost allowance (CCA) rate is used for illustration purposes, although this is one of a number of CCA rates used in the tax system, depending on the class of asset. There are other factors which may affect the tax exposure of particular enterprises and individuals.

TABLE 1

Comparison of pre-tax cost of conventional and indexed loans at similar gross rates

	Conventional loan		Indexed loan
Inflation rate	12%		12%
Real interest rate	4%		4%
Nominal interest rate	16%	16%	4%
Inflation adjustment	-		12%
Deductible cost for $100,000 for 1 year	$16,000		$ 4,000
Non-deductible amount	-		$12,000
Tax cost of non-deductible amount @ 25% tax rate	-		$ 4,000*
Pre-tax cash flow cost	$16,000		$20,000
For a corporation in a 50 per cent tax bracket:			
Pre-tax cash flow cost	$16,000		$28,000

NOTE: The difference in both cases is entirely accounted for by income taxes payable.

* Representing 25 per cent of a pre-tax amount of $16,000 to yield the required $12,000 after tax. For a 50 per cent tax rate borrower, $24,000 is required before tax, 50 per cent going in taxes.

The relationship between conventional and indexed loans for a profitable borrower may be summarized algebraically as follows:

where

I = inflation index rate,
i = conventional loan nominal rate of interest, and
r = ITL real interest rate,

a profitable borrower at a 25 per cent tax rate would be in a neutral position as between conventional and indexed term loans where

$$\frac{4}{3}I = i - r,$$

and a profitable borrower at a 50 per cent tax rate would be in a neutral position as between conventional and indexed term loans where

$$2I = i - r.$$

The impact of this is illustrated by Table 2. As can be seen, because of the tax effect, the conventional rate equivalent of any given ITL rate expands more than in proportion to inflation as inflation rises, with the difference greater at higher tax rates than lower.

This must be considered a highly perverse effect for a program ostensibly intended to help neutralize distortions created by inflation with respect to the tax system. For example, the higher the inflation and conventional loan rates, the less downward competitive pressure from ITL rates on conventional rates for profitable borrowers.*

An unprofitable borrower (for income tax purposes), or a borrower with sufficient loss carry-forwards to cover the indexed inflation increment with no tax cost, would be in a somewhat different position - until he reached a net profit position and began to incur tax costs on the inflation increment. At this point the borrower would likely want the right to convert from an ITL to a conventional loan.

An unprofitable borrower would prefer an ITL wherever the real interest rate on a conventional loan exceeded that on an ITL. Since the real interest cost of a conventional loan depends on guessing what inflation will be during the term of the loan, there is a significant element of uncertainty, not eliminated by the ITL program.

Under the inflationary circumstances which have persisted in recent years, an unprofitable borrower would prefer an SBB to an ITL if that choice were available. The SBB interest cost, being significantly negative in real terms, would be much more attractive, even though interest costs, being treated as dividends, were non-deductible.

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* Obviously an eligible small business borrower who is profitable is almost certain to prefer an SBIG interest rate subsidy of 4 per cent on an otherwise deductible conventional loan to an ITL where that choice exists, that is, for acquisition of new depreciable property.

TABLE 2

Equivalent ITL to conventional loan interest rates

	Inflation rate	Conventional loan equivalent 25% borrower	Conventional loan equivalent 50% borrower
0% ITL rate	12%	16%	24%
	6%	8%	12%
	3%	4%	6%
4% ITL rate	12%	20%	28%
	6%	12%	16%
	3%	8%	10%

Where an unprofitable borrower had a choice between a conventional loan with an interest rate subsidy under SBIG and an ITL (or an ITL with an interest rate subsidy), he would logically pick whichever had the lowest dollar cost because his losses or loss carry-forwards would insulate him from the additional tax cost potential of indexed loans.

Other loan terms

Non-interest-rate terms of indexed and conventional loans are also likely to vary.

Institutional lenders are interested in protecting their financial stake in terms of both asset coverage and earning stream capacity. This protection generally takes the form of (a) adequate equity to provide a margin at greater risk; (b) adequate collateral; and (c) adequate earnings to cover payments of interest and principal as they occur as well as other expenses and liabilities, again with a margin for error. Since ITL's would likely be attractive only to unprofitable borrowers, the security concerns of lenders would likely be increased.

The security problems associated with indexed loans where repayment of principal is deferred can be illustrated as follows. An interest-only ITL with a real rate of 4 per cent would be more attractive to a borrower, because of its significantly enhanced liquidity impact, than a conventional loan at, say, 19 per cent. Interest costs on a $100,000 loan would be only $4,000 instead of $19,000. For the lender, however, the situation would be different. Under an interest-only ITL, the lender's principal, and therefore his amount at risk, would be constantly expanding. Table 3 provides an example of just how significant this increase could be over a five-year term, even with declining inflation. On the other hand, under a conventional interest-only loan at prevailing rates, the constant dollar principal would be less at the end of the loan term than it was at the beginning.

Because of this feature of indexed term loans, lenders would be likely to require either some repayment of indexed principal and/or compensating arrangements such as compensating balances or deposit certificates. The borrower would thus be deprived of some or all of the liquidity or cash flow advantages that he would otherwise look to an indexed loan to provide.

Since ITL's as proposed could only be used to acquire new depreciable assets, it would be unlikely that the borrower could look to the acquired assets to secure a growing principal amount to the satisfaction of an institutional lender.

While ITL's would likely be unattractive to profitable borrowers, or ones likely to become profitable, it is possible that lenders would insist on lending to them on that basis. This could occur where there was a spread between the ITD and ITL indexes in the lender's favour (creating a tax-free incentive to the lender to insist on ITL rather than conventional terms); or where the lender was under pressure to generate ITL's to cover his ITD base; or because of institutional preference.

In these circumstances, a profitable borrower could face not only higher cost borrowing, but stricter asset and earnings terms and a negative liquidity impact. For a borrower with a 25 per cent tax rate, the pre-tax cash required to repay index-adjusted principal on a $100,000 interest-only loan would expand as shown in Table 4. As the table suggests, a profitable borrower and his lender would face a more severe security/collateral problem under an ITL than an unprofitable borrower, or than a profitable borrower under a conventional loan at similar gross rates (real interest plus index rates). The cost of a lender requiring a profitable borrower with a 25 per cent tax rate simply to maintain the nominal value of $100,000 principal during a five year loan term is illustrated in Table 5.

A similar comparison illustrates why the Small Business Investment

TABLE 3
Compound adjustments of deferred principal under an indexed loan

Year	Inflation index	Inflation adjusted principal
0	-	$100,000
1	12%	112,000
2	11	124,320
3	10	136,752
4	9	149,060
5	8	160,984

TABLE 4
Pre-tax cash flow of inflation-adjusted principal to borrower with 25 per cent tax rate

Year	Inflation index	Inflation adjusted principal	Pre-tax cash flow required
0	-	$100,000	$133,333
1	12%	112,000	149,333
2	11	124,320	165,760
3	10	136,752	182,336
4	9	149,060	198,747
5	8	160,984	214,645

Grant interest subsidy on conventional loans would likely be more attractive to borrowers than the ITL program. SBIG's are available to small businesses acquiring depreciable assets or investing in scientific research. (Businesses investing in research will be eligible for special tax deductions as well). ITL's could only be used to acquire depreciable assets, so a direct comparison may be made in that area.

The SBIG will pay an eligible conventional loan down to a maximum net rate of 12 per cent and a maximum interest rate subsidy of 4 per cent. For an unprofitable small business, an SBIG loan at 16 per cent (net 1 per cent) would be equivalent to an ITL where the inflation adjustment real interest rate summed to 12 per cent (for example, 9 per cent infl and 3 per cent real interest). Since inflation cannot be prec d accurately in advance, there would be significant element of uncertainty for a borrower making a choice between and ITL and an SBIG.

TABLE 5
Pre-tax conventional and ITL loan service costs to borrower with 25 per cent tax rate

Year	Inflation index	Conventional interest rate	ITL rate	Conventional* loan service cost (pre tax)	ITL loan service cost (pre tax)
1	12%	16%	4%	16,000	20,000
2	11	15	4	15,000	18,667
3	10	14	4	14,000	17,333
4	9	13	4	13,000	16,000
5	8	12	4	12,000	14,667

* This cost would also apply to an unprofitable borrower under an ITL at the rates indicated in the table.

For a profitable small-business borrower, for whom the inflation increment under an ITL would be non-deductible, an SBIG would be more attractive at significantly higher conventional over ITL gross rates. For example, a 16 per cent SBIG loan (net 12 per cent) would have a pre-tax cost of $12,000 for a one-year $100,000 loan. An ITL for the same amount with 9 per cent inflation and 3 per cent real interest would have a pre-tax cost of $15,000:

$ 9,000	inflation increment
3,000	tax cost of inflation increment (25 per cent rate)
3,000	deductible interest rate
$15,000	

At 3 per cent real interest on an ITL, inflation would have to be known to be below 6.75 per cent for an ITL to be superior to a 16 per cent conventional loan under SBIG for a profitable small-business borrower.

In summary, the ITL program is likely to be significantly more costly than a conventional loan to profitable small businesses, and (perhaps) marginally preferable to conventional loans for unprofitable small businesses. A small business in financial difficulty would prefer a Small Business Bond to an ITL by a wide margin, but the SBB program (involving a tax expenditure subsidy) is scheduled to end in calendar 1982. Both profitable and unprofitable small businesses acquiring depreciable assets or investing in scientific research would be likely to prefer a conventional loan with an interest rate subsidy of up to 4 per cent under the Small Business Investment Grant program (in effect until March 31, 1984) to an ITL. Borrowers who are not small businesses are not eligible for any of these programs. Were they eligible for ITL, profitable borrowers at a 50 per cent tax rate would be likely to find ITL's even less attractive than would profitable small businesses.

And, of course, the ITL program would provide no relief on borrowing for purposes other than acquisition of depreciable assets, such as inventory financing or general working capital purposes. These too are critical needs of business, both small and large.

Current value CCA*

The difference in position between an unprofitable and a profitable borrower under an ITL may be explained in part by reference to the failure to include indexing of capital cost allowances (CCA) in conjunction with the ITD-ITL program.

The rationale for introducting both ITD's and ITL's simultaneously on a matched basis is to create symmetry in tax treatment between ultimate borrowers and ultimate lenders. Only the real interest rate is taxed as income; the inflation increment attracts no tax. In turn, only the real interest rate is deductible by the borrower; the inflation increment is non-deductible. This symmetry is to be reinforced by provisions designed to discourage conventional borrowing with full interest deductibility for the purpose of lending or depositing on an indexed basis. However, the ITD-ITL principles are not carried through to the next logical step: current value tax treatment for the depreciable assets acquired with an ITL (only depreciable assets qualify for ITL's).

One of the main criticisms of historical cost accounting in a persistently inflationary environment is that it overstates income by understating depreciation of assets whose replacement cost is rapidly escalating. In effect, historical cost accounting encourages the tax system to eat into the seed corn of business - depreciable assets such as machinery and equipment.

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* A useful Canadian reference on current value accounting is L.S. Rosen, Current Value Accounting and Price Level Restatements (Toronto: Canadian Institute of Chartered Accountants, 1972).

The effect of deducting depreciation as an expense - called capital cost allowance in the Canadian tax system - is to both recognize the capital expense in calculating income and to generate tax sheltered cash flow for depreciable asset replacement. Indexed lending with historical cost depreciation for tax purposes works in the opposite direction. Not only is there declining nominal depreciation (under the declining balance CCA system in the Income Tax Act), but it is calculated against a constant dollar base continually eaten into even further by inflation, against an asset whose replacement cost is escalating in the opposite direction. On top of that, the inflation increment as well as the principal amount of the loan used to acquire the asset must be repaid from tax-paid or tax-sheltered income. These results have been compounded by the halving of first year CCA rates announced in the November 12, 1981 budget, a harsh blow to business that the federal government has yet to correct.

In a zero-inflation world with 100 per cent write-off during the life of an asset, capital cost allowances would generate sufficient tax-sheltered cash flow to meet full replacement cost. In fact, if the CCA amount earned interest as it accrued, it could exceed replacement cost, or reduce interest costs on borrowing to acquire the asset. In sharp contrast, the application of existing CCA rules to a depreciable asset increasing at the rate of inflation and financed by an indexed term loan would materially weaken the financial position of a profitable borrower, as Table 6 shows. The table assumes the following:

- a $100,000 depreciable asset financed by an indexed five-year term loan of the same amount;

- straight line depreciation for accounting purposes across the term of the loan, with repayment of loan principal at the same rate;

- a 20 per cent CCA rate for tax purposes (10 per cent first year);

- inflation at 12 per cent;

- real interest cost of 4 per cent; and

- a tax rate of 25 per cent.

TABLE 6
Cash flow cost of depreciable asset financed with $100,000 indexed loan

(A) On an after-tax basis:

Year	Depreciation loan principal (lump sum at year end) repayment	Replacement cost (12% inflation	Loan principal inflation increment (12%)	Real interest cost (4%)	After-tax total
	(a)	(b)	(c)	(d)	(e)
1	$20,000	$12,000	$12,000	$4,000	$48,000
2	20,000	12,000	9,600	3,200	44,800
3	20,000	12,000	7,200	2,400	41,600
4	20,000	12,000	4,800	1,600	38,400
5	20,000	12,000	2,400	800	35,200
			$36,000		

(B) On a pre-tax basis:

Year	After-tax total (1)	CCA deductible (year 1:10%) (years 2-5:20%) (2)	Interest deductible (4%) (3)	Net of 1-(2+3) (4)	Tax cost of (4) (5)	Total pre-tax cash flow required 2+3+4+5 (6)
1	$48,000	$10,000	$4,000	$34,000	$11,333	$59,333
2	44,800	18,000	3,200	23,600	7,876	52,667
3	41,600	14,400	2,400	24,800	8,267	49,867
4	38,400	11,520	1,600	25,280	8,427	46,827
5	35,200	9,216	800	25,184	8,394	43,594
		$63,136		$132,864	$44,288	$252,288

Under such an arrangement the borrower would require an average of more than 50 per cent of the historical cost of the asset/original loan principal in before-tax cash flow each year to service the loan and stay even in terms of asset replacement cost. If asset replacement cost increased at a compound rate, the cost would be even greater. Deductible CCA is only 32 per cent of the amount required to fully shelter the income stream supporting the depreciable asset loans (excluding real interest costs) and its replacement cost increase (column 2 plus column 4 in Table 6B). The result is an increased tax cost, undiscounted, of $44,288 on a $100,000 historical asset cost for a 25 per cent tax rate borrower on an indexed basis. Only 27 per cent of this increased tax is attributable to repayment of loan inflation increment out of tax paid earnings (total column (c) in Table 6A as a percentage of column (4) in Table 6B).

The borrower would be better off under a conventional loan, with or without SBIG, because full nominal interest costs, including the implicit inflation increment, are deductible, tax-sheltering the supporting income stream to that extent. For example, a conventional loan at 19 per cent would increase deductions by $45,000 undiscounted across a five year term, yielding tax savings of $15,000 for a 25 per cent borrower.

It would be conceptually and practically preferable, however, for loan inflation increments, like other repayments of principal, to be met from after-tax dollars, but for capital cost allowance deductions to reflect the true costs of capital consumption, including the cost of asset replacement. This could be done either by adjusting CCA rates or by annual adjustment in the cost base for CCA purposes, or both.

For example, in a zero inflation world, a 20 per cent declining balance CCA rate yields an unclaimed CCA balance of 32.7 per cent of historical cost at the end of five years, a concept which assumes some asset realization value. A similar result could be approximated in an inflationary environment by annually expanding the cost base against which CCA is applied by an imputed replacement cost increment. This is illustrated in Table 7. In this example, there would be an unclaimed CCA balance of $65,040 representing 40.65 per cent of an assumed asset replacement cost of $160,000 at the end of five years. By comparison to an unadjusted cost base, deductible CCA is increased on an undiscounted basis by approximately 50 per cent across five years. This would result in tax savings to a 25 per cent tax rate borrower of $10,608 undiscounted across five years.

In its 1980 paper, Inflation and the Taxation of Capital Gains in Canada, the Department of Finance expresses concern that CCA indexing could encourage tax-avoidance trading in depreciable assets. Under existing rules, previously claimed CCA is "recaptured" - that is, added to income - where the proceeds of disposal exceed unclaimed capital cost. Yet this concern is an insufficient rationale for perpetuating a de facto capital tax on depreciable business assets, let alone for increasing that tax load under a partial indexing program. There is little doubt that rules could be devised to permit appropriate recognition of real capital consumption costs, while providing appropriate recapture treatment on dis-

TABLE 7
20 per cent CCA adjusted for replacement cost - 12 per cent inflation

Year	Previous year base cost*	Replacement cost adjustment	CCA previously deducted	CCA for year+
	(1)	(2)	(3)	(4)
1	$100,000	$12,000	-	$22,400
2	112,000	12,000	$22,400	20,320
3	124,000	12,000	42,720	18,656
4	136,000	12,000	61,376	17,325
5	148,000	12,000	78,701	16,260
				$94,960

* Including replacement cost increment.

+ 20 per cent of columns 1 + 2 - 3, including first year. A half rate in the first year, as under existing CCA rules, would not even account for inflation.

posal of previously depreciated assets.

The question of current value accounting is fraught with practical and conceptual controversies which we do not propose to enter into here, even where they lie within the scope of the author's expertise. For example, any particular asset may not increase in cost at the general rate of inflation. There are a number of alternative approaches which could be taken. The relevant point is that CCA unadjusted for replacement cost inflation imposes a significant de facto capital tax on the assets of a profitable business.

However, notwithstanding the conceptual and practical advantages of adjusting CCA in conjunction with indexed term loans, conventional loans are likely to be more attractive to profitable borrowers unless even more generous CCA deductions are allowed than those used in the replacement cost adjustment example in Table 7. Table 8 compares the first year cost of a $100,000 loan with $20,000 payment of principal at the end of the first year under:

- an ITL with no CCA adjustment, 4 per cent real rate, 12 per cent inflation (ITL);
- the same ITL with CCA adjusted annually to reflect increased replacement cost as in the foregoing example (ITL/CCA);

TABLE 8
Comparison of loan service costs for 25 per cent tax rate borrower - first year of $100,000 loan

Loan	Repayment of principal	Deductible interest	Inflation increment	CCA	Tax cost	Total cost
ITL	$20,000	$ 4,000	$12,000	$10,000	$7,333	$43,333
ITL/CCA	20,000	4,000	12,000	22,400	3,200	39,200
CONV	20,000	19,000	-	10,000	(2,250)*	36,750+
SBIG	20,000	15,000	-	10,000	(1,250)*	33,750+

* Imputed tax saving on loss carry forward.
+ Net of imputed tax saving.

- a conventional loan at 19 per cent (CONV); and
- a conventional loan at 19 per cent with a 4 per cent SBIG interest rate subsidy (SBIG).

As can be seen, an ITL as proposed would rank last in attractiveness to a profitable small business borrower. As indicated previously, even an unprofitable borrower would prefer an ITL in only limited categories of circumstances. The SBIG and SBB programs are preferred alternatives to the ITL program in the form proposed.

REGISTERED SHAREHOLDER INVESTMENT PLAN

A Registered Shareholder Investment Plan (RSIP), as defined in the White Paper proposals, would provide partial tax-sheltering of certain capital gains and introduce a new basis for the calculation of capital gains and losses - annual accrual accounting. No indexing is proposed for dividend income.

An RSIP would be a registered account established with an investment dealer, stock broker, or other specified financial institution. Only common shares of corporations taxable in Canada and listed on a Canadian stock exchange would be eligible for acquisition through such an account. Capital gains and losses on eligible acquisitions would be inflation-indexed. Only the real increment would be exposed to taxation according to existing rules - that is, 50 per cent of gains (in this case real gains) would be added to income. Fifty per cent of real losses - losses after indexing - would be deductible from income from other sources; deductibility would not be restricted to $2,000 per annum, as is the case for non-RSIP losses.

The introduction, under the RSIP program, of annual accrual accounting would represent a major change in capital gains and loss accounting for income tax purposes. At present capital gains and losses are not taken into account for income tax purposes until realized. Under the accrual accounting system, unrealized gains and losses within an RSIP would be calculated annually on the basis of year-end share prices, and the net gain after adjustment for indexation would be exposed to taxation in that year.

The limitation to stock exchange-listed companies and to transactions conducted through a registered account is presented as necessary to prevent "backdoor" indexation of assets underlying a company's shares and for ease of administration - in particular, ease of annual valuation. The program as a whole is represented as likely to increase the opportunities to raise new risk capital. Each of these main features and objectives is considered below.

Impact of restricted eligibility

Eligible investors

Only individuals, not corporations, would be allowed to invest in RSIP's. This provision discriminates against both those corporate investors in shares that would prefer the indexed tax treatment which an RSIP affords and individuals with shareholdings held indirectly through a corporate vehicle. This is in line with the White Paper's intention to strictly control access to indexed investment returns.

Listed vs. unlisted companies

More important is the restriction of RSIP investment to common shares of companies listed on a recognized Canadian stock exchange. According to Statistics Canada, there are approximately 300,000 enterprises in Canada with assets in excess of $250,000 or sales in excess of $500,000, and many more smaller companies as well. There are approximately 1,700 companies listed on the five Canadian stock exchanges in Toronto, Montreal, Vancouver, Alberta, and Winnipeg. Thus only a tiny fraction - considerably less than one per cent - of companies in Canada would be eligible to have their shares purchased through an RSIP.

Moreover, most stock-exchange transactions do not involve the raising of new capital, but rather the sale and purchase of shares already outstanding. For example, in 1981 there was $3.6 billion of new equity financing in securities listed on the Toronto Stock Exchange, against a total trading volume in that year of $25 billion.

Only $3.5 million of this new equity financing was raised directly through the facilities of the exchange itself. This is not to criticize the role of stock exchanges. The more senior exchanges in particular are not primarily in the business of directly placing new issues. Their principal business is the provision of a liquid market in which to trade and price shares, both newly issued, and previously issued. While most new financings are initially placed outside stock exchanges, the availability of a liquid market is important or essential in attracting investors to put up capital.

Private companies competing for equity capital are thus at a relative disadvantage, since for their shares there would be no ready market and no current price valuation. To the extent that RSIP's would provide more attractive tax treatment of shares in listed companies, the disadvantage faced by private companies seeking new equity capital would grow. Yet the contribution of RSIP investment to the equity of even listed corporations would be limited, since most stock market activity refers to trade in outstanding shares. Thus the RSIP proposal as it stands would have a much smaller than intended effect in raising fresh equity capital.

Corporations "taxable in Canada"

Among listed companies, eligibility for RSIP's will be restricted to corporations "taxable in Canada". It is unclear what is meant by this reference in the White Paper. Perhaps the intention is to exclude foreign companies that list their shares on a Canadian stock exchange.*

If this interpretation is correct, the exclusion will discourage local investment in foreign incorporated companies relative to eligible Canadian companies. Canada is not as major a centre for multicurrency international finance as London or New York, where significant discrimination against non-national companies raising capital would have consequences. (However, discriminating practices in principle do not advance Canada's development as an international financial centre.) There is no direct Canadian ownership issue, since such companies are not foreign-controlled Canadian subsidiaries, which would be eligible for RSIP as proposed if they are listed. The basic philosophy is that the favourable tax treatment, to the extent it exists, should be channelled in favour of securities of companies active in Canada. While this can be questioned in principle (as both the National Energy Program and FIRA are criticized) and in terms of discriminatory treatment of certain investor preferences, it is likely to be less important than other provisions in terms of the program's overall impact.

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* Out of a total of 838 companies listed on the Toronto Stock Exchange, 67 are incorporated abroad. Some companies, such as General Motors and IBM, have Canadian subsidiaries which pay taxes in Canada, but it is the shares of the U.S. parents which are traded here.

Common vs. preferred shares and other equity investments

The RSIP program as proposed would be restricted to "common shares". The intent is to exclude other types of equity instruments, notably what are commonly called preferred shares.

There are likely to be some definitional problems with the notion of "common shares". The term is no longer in technical use in the corporation statutes of many Canadian jurisdictions, including the Canada Business Corporations Act. Presumably it refers to shares entitling the shareholder to a residual stake in the net assets of the corporation and to dividends at the discretion of the board; that is, not at a pre-determined fixed rate. The question of voting and non-voting shares might be addressed in RSIP legislation if or when it emerges, but it is really a separate policy question better left to the financial sector and to regulatory authorities such as the stock exchanges themselves.

Whether rights issues, options granted by the issuing corporation, or other non-share equity instruments which have similar features to common shares would qualify is unclear. Limited partnership interests would presumably not, although such interests are difficult for technical reasons to list and trade in a stock exchange environment.

The exclusion of preferred shares is in line with the White Paper's apparent philosophy of tightly controlled access to indexed tax treatment for investors, but this exclusion could have serious consequences for corporate finance.

Preferred shares typically have some or many of the characteristics of debt. For example, a fixed dividend rate is roughly analogous to interest on debt instruments. Where preferred shares are retractable or redeemable, the principal amount may be treated in a fashion somewhat similar to many debt instruments. However, from a risk point of view, preferred shares have desirable equity attributes on the corporate balance sheet.

Were indexed tax treatment accorded to preferred shares, but not to corporate debt, companies would likely structure preferred share issues to raise debt-like capital so as to obtain the benefits of indexed tax treatment shared between the issuer and the investor. Share dividends would also have to be indexed on an appropriate combined basis with capital gains and losses.

There is some difficulty to indexing capital gains but not dividends - in general, and with regard to preferred shares in particular. On traded debt instruments and conventional preferred shares, capital gains and losses reflect the capitalized value of their yield in relation to prevailing interest-rate and similar yields; for companies in financial difficulty, they reflect the risk of loss of principal.*

If a significant incentive were introduced into the tax system in favour of corporations issuing certain categories of security rather than others, the government could be seen as intervening in what was properly the realm of private corporate financing decisions. For example, the RSIP proposal could actively discourage new capital being raised through preferred shares, even if that were strongly "preferred" by both issuers and investors. The imperfections in indexing both capital and dividends would seem to be far preferable to the tax system deliberately introducing artificial distortions into sensitive areas of corporate finance.

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* It would in principle and in practice be highly desirable to provide combined indexation of dividends and capital gains/losses. The formula would have to reflect the different tax treatments of capital gains and dividend income (half of capital gains are added to income, whereas dividends are eligible for the dividend tax credit). For example, total gains from both sources could be summed, then indexed. The remaining real return could be allocated to dividends and/or gains in proportion to their respective contributions to pre-indexed returns, and those real gains and dividend earnings treated in accordance with existing tax rules.

Financial intermediaries

Most financing transactions in Canada involve financial intermediaries at some stage. In the equity field, most publicly traded share transactions are handled through brokers or investment dealers on a commission basis; stock exchange transactions must be conducted by member brokerage firms of the exchange. The largest volume of new equity financings by issuing companies are also handled by investment dealers, whether through public offerings or private placements.

If the RSIP program were to stimulate secondary trading in shares of listed companies, as would be likely, this would benefit the stock brokerage industry. Stockbrokers have recently been hard hit by a sharp fall in both trading volumes and share values, against which their commissions are calculated. The prospective introduction of negotiated rather than fixed commission rates in some jurisdictions, notably Ontario, adds a further cause of concern in the brokerage industry. It may be objected that benefiting brokerage commissions is not a priority for tax policy. This is to miss the point that the trading business helps underwrite the ability of the financial industry to provide a substantial range of services in the higher risk area of new corporate underwritings.

There is a further implication for both financial intermediaries and companies requiring their services that is perhaps more important to the RSIP proposal's stated objective - the stimulation of flows of new risk capital (even if this appears unlikely to be achieved by the proposal as it stands).

Most companies require financing expertise to attract capital from external sources other than principal shareholders. Financing requires specialized connections with sources of capital, sensitivity to market needs, and specialized skills in structuring, negotiating, and marketing financial issues. The costs of arranging financing can be considerable, particularly for public offerings, which must be qualified with a prospectus, for issues which can only be placed through access to fairly wide distribution facilities, and for private placements with sophisticated and demanding institutional investors such as insurance companies, trust companies, and pension funds.

Small and medium-sized companies generally have difficulty in attracting professional financing advice and professional access to sources of capital. Often their capital requirements are too small to support the professional fees required. These are normally built into the total financing cost, with the issuer receiving the proceeds of the issue net of the financial intermediary's fee. Since it may be as costly to arrange $1 million of financing as $20 million, the fees and commissions on a smaller issue may be too big a load for the issue to carry.

The RSIP proposal would, if anything reinforce this pattern, adding one further disadvantage to smaller and medium-size companies attempting to arrange equity financings in the capital markets.

"Backdoor" indexation of assets

A principal reason for excluding non-listed or private companies from the indexation proposals, at least in the minds of the authors of the White Paper, is concern about "backdoor" indexing of underlying company assets through indexed tax treatment of company shares. The theory is that private companies might be in a position to so structure their affairs as to achieve this result. For example, capital gains on real property would not be indexable for tax purposes; but if real property were the only asset held by a private company, the same result could be achieved for investors by realizing on the shares of the company on an indexed basis.

Of course, this approach in the White Paper betrays a disturbing lack of commitment to the comprehensive indexation of investment assets.

The view that public companies are unlikely to attempt "backdoor" indexation is presumably based on several factors. These are assumed to include: the fact that listed companies, by virtue of their size, have a broader range of assets than private ones; their deployment of assets in active business undertakings; their broader base of arms-length shareholders, structuring the pattern of corporate distributions in a manner which makes tax avoidance more difficult; and public market pressure on management of such companies to demonstrate current earnings in order to support the trading price of company stock.

It must first be questioned whether broader indexation is undesirable and suitably characterized as tax avoidance. The view in the White Paper amounts to an assertion that the income tax system should include a real tax on capital in an inflationary environment with exceptions only as determined by the government, and/or that the tax system should be used to enforce government preferences in structuring and allocation in the financial markets.

It is in any case doubtful that listed company status provides the protection from tax avoidance the tax authorities seem concerned about. If the RSIP proposal is implemented as proposed, it is virtually certain that some companies will bring issues to market or arrange transactions which are based on achieving tax-free indexed gains on underlying assets through RSIP share indexation. This will probably be easiest for junior companies with limited qualitative diversity in their asset bases, but will also apply to some acquisitions designed for favourable treatment of capital gains under RSIP. It could encourage certain types of transactions ending in liquidation of assets. The White Paper asserts that one of the reasons for taxation of 50 per cent of capital gains is to achieve approximate neutrality as between retained earnings and corporate distributions. Partial indexation upsets this neutrality, and people will be structuring financial transactions to exploit advantages wherever they see them.

The result is predictable. The protection from avoidance the tax authorities are seeking will prove to some extent illusory. Attempts will be made to plug the "loopholes". An additional measure of complexity will be added to the Income Tax Act, which is already too complex.

In any case, much the same degree of protection from "backdoor" indexation could be achieved without systematic discrimination against non-listed companies. One approach would be to qualify private companies for RSIP indexation where they had a sufficient number of arm's-length shareholders, say fifteen to fifty, holding some minimum percentage of outstanding shares, say 20 per cent. This solution has some potential problems - the number of arm's-length shareholders might be reduced - but addressing them would be no more difficult in principle than addressing the problem of an RSIP-qualifying listed company which is delisted for lack of float or other reasons, something that happens to a small number of companies each year.

Another approach would be to permit RSIP indexation of private company preferred shares with certain characteristics. In principle, common shares reflect net asset values in the corporation. Preferred shares, in contrast, are typically based on specified nominal or par amounts against which dividends are calculated, and which determine proceeds on redemption or retraction. While "backdoor" indexation of assets - again, if that is a bad thing - can be accomplished through returns to preferred shares, a determined effort to design private company preferred shares with characteristics making them eligible for RSIP would almost certainly be successful.

Annual accrual accounting for capital gains

A principal reason for focusing on listed companies in the RSIP proposal appears to be the desire of the tax authorities to introduce annual accrual accounting of capital gains for tax purposes, both as a revenue offset and as structural "fine tuning" of the tax system. The RSIP proposal may herald future attempts to broaden annual accrual accounting for capital gains and losses.

Accrual accounting involves annual valuation and taxation of capital gains and losses. At present, no tax is payable on capital gains until they are realized. This results in an interest-free deferral of tax liabilities where capital assets are held for some period of time.

The problem is that annual accrual accounting requires an annual valuation. For non-traded assets, or assets traded in an insufficiently broad market, reliable valuations, made by chartered accountants or others expert in valuation, could represent a considerable and perhaps unnecessary expense. Even so, valuation of such assets usually involves an element of guesswork.

The restriction of RSIP's to listed shares, for which accrual accounting could be done on the basis of year-end exchange prices, would presumably avoid this problem. Thus the proposed restriction represents an explicit policy choice - namely, that accrual accounting, because of its conceptual appeal or revenue effect, is more important than the extension of indexation to some or all categories of non-listed assets.

Yet the accrual accounting objective of the authors of the White Paper could be circumvented by sophisticated investors in a variety of ways. For example, capital gains are not taxed in a self-administered RRSP, but the dividend tax credit is wasted. It would thus make sense to put shares, with high capital gains but low dividend potential in an RRSP, and shares with low capital gains but high dividend potential in an RSIP. The downside risk of capital losses on RSIP shares would be underwritten in part by the tax system, because such losses would be deductible without restriction against other forms of income (outside an RSIP the annual maximum is $2,000). This would be the more true as losses are calculated against indexed value rather than historical cost. Preferred shares would be held outside either plan to qualify for the $1,000 in tax-free dividends for which RSIP holdings would be ineligible. Such techniques will make the rules governing capital gains and losses between RSIP and non-RSIP investments more complex.

In any case, there are both practical and conceptual problems with accrual accounting as it is proposed to be introduced in conjunction with RSIP's. First, it must be questioned whether year-end share prices (or share prices at any arbitrary point in time) are an accurate measure of value. The assumption underlying accrual accounting is that, for tax purposes, all gains (and losses) are deemed realized by all RSIP shareholders at that point. But if significant numbers of shareholders were in fact realizing all at once, actual share prices would be much lower. In other words, tax liability is calculated and imposed on the basis of circumstances virtually certain never to actually occur.

Second, accrual accounting could eliminate one perceived problem, interest-free deferral of tax liability on capital gains until realized, and introduce its mirror image, enforced tax loans to the government because of tax liabilities artificially calculated. Stock prices are notoriously volatile. Hence it could routinely occur that an investor would have to pay accrual accounting capital gains tax on share prices which then proceeded to fall, wiping out the basis on which tax liability was attracted. He would have no recourse but to wait for his next year-end RSIP accrual accounting and beyond - that is, until his tax return was filed and processed. Thus, by imposing earlier dates for tax liability, accrual accounting would also impose earlier requirements for cash to meet those liabilities, which could result in forced liquidations.

Finally, accrual accounting interferes with a key element in trading in securities: timing realizations. It potentially imposes artificial timing of realization at the expense of the investor.

Given the extent to which they are offset by conceptual artificialities and opportunities for avoidance, the revenue effects and conceptual improvement in the tax system realizable through accrual accounting add up to an insufficient justification for change from the present rules, taxation on realization. Some have proposed that an alternative to accrual accounting would be to levy an imputed interest charge against deferred tax liability on capital gains until realized. This would be resisted both conceptually and practically by most investors. From a policy standpoint, it discourages long-term investment. It could be said that there is already too great a bias in favour of short-term speculation gains in financial markets. There is the very complex question of what the amount and term of the imputed loan would be where the share price fluctuated during the period it was held. Would there be imputed interest paid on unrealized losses for those days, weeks, or months when the share price put the investor in a theoretical loss position? Would interest costs be deductible?

Healthy financial markets require a significant long-term investment sector. This is particularly needed if the presently battered financial markets are to support sustained recovery. Accrual accounting emphasizes a short-term investment perspective and premature realizations and exposure to tax liability. From the standpoint of an attractive climate for Canadian financial markets, it would be an undesirable principle to introduce into the Canadian financial system at this time.

Related provisions

A number of additional changes or restrictions deserving of comment are proposed in conjunction with the RSIP program.

Deductibility of interest

It is proposed to prohibit deductibility of interest on money borrowed for the purpose of RSIP share purchases. This is a program-specific version of a controversial provision of the November 12, 1981 budget which would have restricted interest deductibility on investment borrowing generally. The proposed restriction on RSIP borrowings would, inter alia, restrict margin trading in an RSIP account. There is in any case some doubt as to whether this restriction could in practice be systematically enforced, especially against investors with a range of assets against which to borrow.

The theory behind no interest deductibility for RSIP purposes is that such interest is not indexed, whereas RSIP earnings, in part, are. This would create a tax incentive to borrow on a deductible non-indexed basis for earnings taxed on an indexed basis. The lack of indexation of dividends should also be contrasted with restricted interest deductibility.

This is but one specific example of the distortive implications of highly selective indexation for tax purposes. While it must be appreciated that comprehensive indexation would be a mammoth and complex undertaking, arbitrarily selective indexation could be worse than more complete partial indexing across established chains of transactions. It was noted in connection with indexed term loans to businesses that the proposals stopped short of indexing capital cost allowance on depreciable assets eligible under the ITL plan. In the case of loans for RSIP's it would have been better to make indexed term loans eligible for RSIP purchases and to allow deductibility of real interest costs of indexed loans acquired for this purpose, rather than to eliminate interest deductibility altogether. Such a proposal would, incidentially, help offset the problem of ITD's drawing funds away from equity markets and help deal with the real possibility that individual demand for ITD's would exceed demand for ITL's, creating a serious mismatching problem.

Rollover provisions

The White Paper does not deal with rollovers of existing shareholdings into an RSIP. If there are no rollover provisions, a similar result can be achieved, at a double transaction cost, by liquidating existing holdings for repurchase in an RSIP. If the intent of no RSIP rollover provisions is to encourage taxable realizations before transferring shareholdings to an RSIP, this can be avoided by refraining from realizing on a net gain basis. It would be preferable to structure appropriate rollover provisions.

Tax treatment of RSIP dividends

The White Paper proposes, essentially without explanation, that dividends on shares held in an RSIP not be eligible for the $1,000 exemption on interest, dividends, and capital gains. In the case of interest and capital gains, it can be argued that the $1,000 exemption approximately compensates smaller investors for the impact of inflation. Where indexation is to be introduced - as in interest on indexed term deposits, or capital gains in an RSIP - there may be some rationale for eliminating access to the $1,000 exemption for those particular classes of returns. Since no indexation of dividends whatever is proposed in the White Paper, it is unclear why dividends on RSIP shares should be restricted.

In effect, an investor is faced with a choice of either RSIP gains indexation and no dividend exemption or eligibility for dividend exemption and deferral of gains without indexation. It is unclear what the rationale is for attempting to so structure investor choices. Wealthy investors, who are typically greater beneficiaries of the $1,000 exemption, will have sufficient assets to arrange their holdings to take advantage of both sets of provisions.

Alternative proposals

The limited applicability of the RSIP proposal, and its likely primary impact on secondary trading rather than new equity financing even for listed companies, invites a search for alternatives to the RSIP program as presently proposed.

Significantly broadening the class of assets eligible for indexed tax treatment is one obvious alternative. One reason why the White Paper resists this is the intention to introduce annual accrual accounting for gains and losses. If this concept were withdrawn in favour of the present system of taxation on realization, one major obstacle to the inclusion of other assets would be removed. Under any indexation scheme there is a computation problem, that of matching inflation indexing to the time assets are held. The arithmetic may be tedious, but in an age of calculators and computers the problem is far from insurmountable.

A far simpler approach, and one likely to be better received by the financial community, would be straight removal of capital gains tax on corporate shares held by individuals. This has provided a relatively low tax yield in any case. In the case of equities, capital gains have on average performed poorly in relation to inflation across the last decade. Accordingly, taxation of gains has on average represented a net real tax on capital rather than on income. The White Paper recognizes this point in its representation that half taxation of capital gains is intended to provide partial recognition of the effects of inflation. The White Paper's RSIP proposal goes the next step by recognizing that even half taxation of net capital gains may be excessive.

There are, of course, objections to the removal of capital gains tax. There is a political constituency in Canada which opposes favourable tax treatment of capital. The exemption of any potential category of income may be seen as distorting the objective of conceptual purity or notions of equity in the tax system.

The White Paper notes that half taxation of capital gains is intended to achieve an approximate neutrality between retention and distribution of corporate earnings, given the tax treatment of corporate income and dividends paid out. This alleged neutrality is to some extent a phantom, since it occurs only where corporations and their shareholders are in specific tax brackets, approximately 50 per cent for corporations and 33 1/3 per cent for individuals. Furthermore, retained earnings are not necessarily exactly translated into corresponding capital gains by the market. And, of course, many different approaches can be taken to defining the concept of neutrality.

The more important question is whether neutrality between corporate retentions and distributions is in fact desirable in an environment of severe corporate illiquidity. Retained earnings which are translated into capital gains favour both the capital base of corporations and investors, with the market rather than the corporation providing the cash return. Removal of the capital gains tax could be seen as creating a bias in favour of retained earnings. This might be desirable in the present and foreseeable economic climate. The RSIP proposal appears to create a bias against retained earnings on shares held within the plan because it is likely to be more attractive to hold dividend-yielding shares in an RSIP, for the reasons indicated.

While removal of capital gains tax would be preferable and administratively less costly, there may be a determination on the part of the government to proceed with indexation of capital gains along RSIP lines. In this case, the proposal should be broadened in at least three respects.

First, it should be broadened to include, at a minimum, all companies with a reasonable number and percentage of shareholdings at arms' length to the company and those who control it. This would enable unlisted companies, including those whose shares are traded over the counter and many private companies, to raise capital or have their shares acquired on an indexed basis. Alternatively, defined categories of redeemable or retractable preferred shares of private companies should be eligible. In this event, both dividends and capital gains should be indexed, with their real returns treated for tax purposes in proportion to their respective contributions to pre-index gains.

Second, the indexed term loan program, if it is implemented, should be extended to include borrowing for RSIP purposes with real interest deductibility. This would increase the internal consistency of both programs and be consistent with the denial of interest deductibility of conventional borrowings for RSIP purposes.

Third, dividends earned on RSIP shares should be indexed according to an appropriate formula in relation to the different tax treatment of capital gains and dividends, such as the one suggested above. There is an important inconsistency in the proposed tax treatment of investment returns as between dividends and capital gains.

If the policy objective, as stated in the White Paper, is to stimulate new risk investment (and hence corporate liquidity), the RSIP approach is not well conceived for that purpose. If it is desired to improve corporate liquidity through the introduction of indexation principles, the place to start is in current value adjustment of capital cost allowance. Unfortunately, the federal government has moved in the opposite direction by halving first year CCA rates across the board. For a number of classes of depreciable asset, this generates a CCA amount which is less than the cost of inflation, let alone the cost of conversion of assets from new to used and of actual depreciation through use. The tax avoidance associated with year-end acquisition appears to have played too large a role in the government's position on this issue.

The government could also consider direct tax incentives for new share issues, through partial deductions against income or tax credits. These could operate in favour of either the issuing company or the investor. In either case, the tax benefit is likely to be shared between issuer and investor through market pricing. Such techniques could concentrate tax expenditures on capital raised through the issue of treasury shares.

GOVERNMENT INTERVENTION IN THE ALLOCATION OF PRIVATE FINANCIAL CAPITAL

Apart from their specific provisions, the ITD-ITL and RSIP proposals raise another policy issue of potentially broad import. To what extent is it appropriate for the federal government to intervene so directly in structuring and allocating capital flows in the private sector?

Government involvement in the capital markets is not new, but these programs introduce an important new beachhead of principle. Both programs are designed to attract savings on highly specific terms, and then to see those savings allocated to specific sectors on specific terms. This approach is reinforced by restrictive provisions in related areas.

These programs can be distinguished from most other federal government involvement in the financial markets: the Bank of Canada, as regulator of the money supply; government borrowing for its own purposes; regulation of financial institutions in support of financial security; deferred tax treatment under registered pension plans and RRSPs; government lending institutions designed to fill gaps in the financial markets, such as the Federal Business Development Bank and the Export Development Corporation; and capital or interest-rate subsidy programs such as SBIG.

If the ITD-ITL and RSIP approaches are extended - Registered Home Ownership Savings Plans might be included, though the saver and ultimate user of the funds are one in the same - the financial markets could become a proliferation of government structured, registered, and supervised investment plans, rather than genuine markets performing the allocative function between regions, sectors, and competing sources and users of funds. The federal government will not be the only player: provincial governments will involve themselves as well, as Ontario's Small Business Investment Corporation program illustrates.

The government is able to package such programs seductively. For the taxpayer, there is an attractive tax advantage (or disadvantage to investing elsewhere). For the financial institutions selected as agents of the tax authority for registration and administration purposes, tax legislation is a major supplier of new business through controlled instruments or vehicles from which administrative costs can be recovered.

In the White Paper, the federal government proposes a major but controlled restructuring in two very important financial markets, new home mortgages and common shares of listed companies, and perhaps a third, term lending to small business, farmers, and fishermen. Will registered tax vehicles for other sectors follow? Federal government securities? Canadian venture capital investments? Canadian oil and gas properties? Canadian films? Canadian high technology investments? Mega-projects? With each new program the pattern could become harder to reverse. There could be progressive demands from various sectors for their own registered investment plans to be recognized. Those forms of savings and investment not so favoured will be exposed to implicit tax penalties.

The problems associated with more pervasive government structuring of financial allocations would not end there, as the possible impacts of the ITD-ITL and RSIP programs illustrate.

There is a potentially serious problem of indexed term deposits drawing significant volumes of funds away from conventional deposits, driving up conventional interest rates; or away from equity investments, constraining corporate liquidity even further.

A significant mismatch could occur between depositor demand for ITD's and borrower demand for ITL's. If this matching problem were to result in lenders forcing ITL's on reluctant borrowers (for example, profitable small businesses), those borrowers would face higher tax costs and lower liquidity, instead of loan service cost relief.

On the other hand, if the gap between ITD supply and ITL demand were to be met by issuing new indexed government debt securities, then much broader issues, not even raised in the White Paper, come into play. The program could amount to a "backdoor" introduction of indexed government debt, and, ultimately, to indexation of government deficits. The government as indexed borrower would be in competition for indexed term loans with, for example, unprofitable small businesses. Government's demand for funds could reinforce the siphoning away of funds from conventional money markets through indexed term deposits. There would be less and less capital available for new productive investment in the private sector.

The proposals would also introduce negative distortions within private sector financial markets. For example, profitable small businesses are discriminated against in the ITL program, and all non-listed companies are excluded from the RSIP proposal. Among listed companies, RSIP appears to distort capital structures away from flexible choices between a variety of common, preferred, and debt financing in favour of common shares with attributes attractive for RSIP (for example, prospective dividend yields where the more generous capital loss provisions of RSIP help underwrite downside risk).

Many of these problems arise from the selective and manipulative use of tax policy principles in the design of these proposals. Provisions which would be fairer or less distortionary are precluded on grounds of revenue effects without cost-benefit quantification. The exclusion of most types of assets from indexed treatment implies that "ability to pay" is extended from a principle underlying progressive income tax rates to a justification for perpetuation of real taxation of capital, whether productive or investment. Administrative priorities of the tax authority, such as convenience of annual valuation to permit the introduction of accrual accounting, are permitted to determine central program features such as the scope of indexation.

Inflation-related distortions which the governnent has previously recognized* are ignored or inadequately addressed. For example, the overstatement of business income and therefore tax liability arising from historical cost accounting for depreciable assets would, if anything, be exacerbated by certain aspects of these proposals.

An apparent attempt to force a resolution of all trade-offs - revenue, equity, neutrality, potential for tax avoidance, economic impact, and administrative convenience - within each program with minimal or no adjustment in other parts of the tax system adds to the contrived character of the programs.

If the foregoing analysis is correct, the ITL and RSIP programs offer few advantages and many problems and drawbacks, at the possible cost of introducing a growing number of centrally planned investment vehicles and markets. In hard financial times, there is a temptation to take help wherever you can get it. In this case, the implications of expanding government involvement in structuring and allocating financial flows should be thoroughly studied before such proposals are implemented.

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* Such as in the Department of Finance paper Inflation and the Taxation of Capital Gains in Canada (1980).

Samuel A. Martin

The essence of the White Paper proposals is that certain selected groups of Canadians would be singled out for "inflation-insulation" on a segment of their cash flows. Investors in indexed deposits would pay lower taxes on investment income; new home buyers, small businessmen, farmers, and fishermen would pay lower interest rates on eligible term loans. The corollary, of course, is that the net gains, if any, made by these groups of Canadians would be shifted as costs to those groups unable or ineligible to participate.

I concur with the government's premise that inflation is devastating economic growth, stability, and equity. I also agree that some sectors of society are deserving of special consideration because of extraordinary economic hardship. And I do not seriously criticise the analysis and conclusions reached by the authors of the three commissioned papers. (It is relevant to note, however, that the package of reading material for participants contained more than 150 pages of reasonably complex analysis. Despite this thoroughness, one is left with a high degree of uncertainty as to the proposal's full implications - both macro and micro. In fact, the more one reflects, the more complicated the issue becomes.)

The White Paper proposes to address a fundamental, broadly based, and chronic economic problem with a piecemeal, selective, and diversionary solution. It is a program that is bewilderingly (indeed absurdly) complex, at a time when we require clarity and focus.* Its concessions to special

* Roger Smith identifies 119 special, and complex, income tax concessions ("tax expenditures") for selected groups of Canadians, valued at billions of dollars. Since these are not accounted for as cash expenditures, their magnitude, and their economic and social implications, are virtually impossible to measure.

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interest groups will sow the seeds of divisiveness and selfishness* when the country needs unity and co-operation. It is a further massive (and costly) intrusion by the government to challenge the natural market mechanisms which determine interest and inflation rates, at a time when our economic survival depends on less government insulation from the realities of vigorous, sustained competition.

Inflation is one of Canada's fundamental financial problems. One of its causes is a widespread mentality of delusion and excess in financing both the public and private sectors. If it is in the national interest to subsidize the incomes of selected groups of Canadians, then Parliament should legislate a program of expenditures targeted to those groups. Any such program of subsidy should show in advance how the expenditure is to be financed and explicitly identify those groups of Canadians whose taxes will be increased (or incomes reduced) as a result of the subsidy. The ensuing debate would be enlightening for the country.

I urge Canadians to withhold endorsement of the MacEachen proposals. Indexing attacks a symptom of inflation, not the disease. Instead let us urge the federal government to lead the assault on inflation itself, by exercising fiscal integrity, and not accept palliatives designed simply to defer and deflect the adjustments all Canadians must make if we are to return to economic stability.

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* The disparity in family disposable incomes in Canada is already among the highest in the world - the upper fifth of Canadian families have after-tax incomes more than five times those in the lowest quintile.

Jack Mintz

A number of today's papers have commented basically on the issue of whether one should take a piecemeal approach, as taken in the White Paper, or try to achieve full indexation of the tax system, which one could call the general or comprehensive approach. Perhaps I should go one step back and say a few words about the general principle of taxation.

One of the salient questions asked by economists is what kind of tax base is desirable from a social perspective. In the current literature there is a great deal of debate about comprehensive versus consumption base taxes. The White Paper basically follows the line of comprehensive taxation, where one would include all income, including interest earned on savings, as part of the definition of income. Now, a number of economists and recently two major reports - one from the United States, "U.S. Blueprints for Tax Reform", and the "Meade Report" from the United Kingdom - have recommended consumption base taxes where either consumption is taxed directly by allowing the deductibility of savings, or interest income is exempted; these are equivalent in present value terms. There are a lot of arguments in favour of either type of tax base, but I should mention that in recent years we have moved to consumption base taxes of a sort - one being the Registered Retirement Savings Plan, another being the $1,000 exemption of interest and investment income. Both follow the consumption base tax principle. My personal feelings favour consumption base taxation, but I am willing to go along with the feelings of the Department of Finance on this point and say that if we have comprehensive taxation we should have indexation. Certainly I agree with all the authors' comments that general indexation of the tax for inflation is a desirable thing to do.

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The important issue, once we accept the principle of comprehensive base taxation, is whether one should start with the piecemeal approach taken in the White Paper or with a general approach. I suppose one has to understand the problems of the Department of Finance, which I don't, but perhaps there is a feeling that the piecemeal approach would be better to begin with and that later we can move to full indexation for inflation in our tax system. So, given that we have to accept the piecemeal approach, a few words can be said about the proposal, which I thought was ingenious in many ways. But as with most proposals, there could be a few problems and some things may need to be ironed out. The first problem is the issue of eligibility for the ITL, and I think Peter Howitt's paper went through a very good discussion of that. I certainly agree that there is a desirability for broadening of the eligibility. Even if the Department of Finance wishes to restrict eligibility at this point, there may be better ways of doing so. For example, rather than discriminate between new and old homes, let mortgages up to a maximum qualify for the indexed loan. The second problem is really a problem of clarification. When I read the original document it was a little bit unclear whether, when there is a negative real rate of interest, negative real income would be written off taxable income for investors or included in the taxable income of the borrower. For clarification perhaps John Bossons might help me on this. In other words, is a full loss offset given for negative real rates on the deposits?

JOHN BOSSONS

That's kind of an open question.

JACK MINTZ

I didn't see it answered in the document. It was very clear that in the registered shareholder investment plan there is some consideration for movement towards full loss offsetting, but it was not stated at all in the case of ITD's.

JOHN BOSSONS

The neutral thing would be to allow for a loss offset.

JACK MINTZ

That's right. I would argue then for full loss offsetting in the case of negative rates for deposits, but of course borrowers who have a negative real rate would have to include that income in their taxable income. The third puzzle that I found was when restricting eligibility to small businessmen, farmers, and fishermen I was a bit anxious that there was an additional restriction that only new depreciable capital would qualify. In work done by Robin Boadway, Neil Bruce and myself on the effects of taxation and inflation on the user costs of capital in Canada, we have found that inventories have been especially hard hit, and I don't understand why the restriction only applies to new depreciable capital. All types of fixed capital should qualify.

In regard to the Registered Shareholders Investment Plan, I applaud the Department of Finance's move towards accrual taxation - unlike Dr. Marchant. I think that this would be a very good thing, but I also applaud Peter Howitt's idea that if there are any taxable gains upon accrual, individuals who do not wish to pay taxes should be able to carry forward their tax liabilities at a rate of interest. I am not yet fully convinced that non-publicly traded stocks would be a problem with the RSIP. Currently there are proposals in the literature as to how to treat non-traded stocks so that one can tax them on an accrual basis. One possibility is the Helliwell proposal of 1969. Another is suggested in the Meade Report: basically, taxes would be assessed when the shares are sold and an interest rate penalty assigned based on the advantage given to the taxpayer for deferral of taxes in each year. The penalty can easily be calculated so that one implicitly taxes shares on an accrual basis. Thus non-publicly traded stocks could be included in the RSIP. I think this would be especially important for smaller businesses that are unable to trade shares on the major stock exchanges.

A fifth point that has been alluded to in a number of papers is the problem of backdoor financing, which arises even if one might say that one cannot deduct nominal interest in order to finance investments made in particular inflation indexed assets. People can get around the provision by moving their assets in particular ways so that they can get nominal interest deductibility. Perhaps, instead of saying that carrying charges cannot be written off, vis-a-vis investment in an inflation-indexed asset, one could allow all carrying charges to be deducted except for a certain proportion, that proportion being based on the proportion of indexed deposit assets and RSIP assets to the total investment. One would not have to police backdoor financing and the deductions would be made automatically.

Finally, I have just a couple of comments about a few items discussed in the various papers. One has to do with the question of inflation risk. With variability in real rates arising from inflation risk, borrowers will tend to have high profits when real rates are low and inflation is rising and vice versa, so they do face some inflation risk. However, I am not yet convinced the inflation risk is serious for savers. In fact, inflation risk may actually be a good thing for them in the following sense. If real rates of return are negatively correlated with their income - that is, real rates on savings tend to be high when economies go down and vice versa - then there may be a negative risk premium faced by savers and the removal of it may actually increase the real cost of their investment.

The other question I have is about the Jump and Wilson paper. I found the calculations of unsheltered interest income rather intriguing. The concern that I have and I am sure that most people have is exactly what real rate will be established in the end, given this proposal. One thing that may occur is that people with unsheltered interest income may simply go with the RSIP route rather than hold deposits. Real rates may be positive or higher in that case, especially for high income individuals. The amount of unsheltered interest income in the higher income brackets is very important. The Jump and Wilson paper importantly gives a calculation of that. My own calculations are not as high although they are close to the lower bound suggested by Jump and Wilson.

James Pesando

There are two comments that I think are relevant in view of the discussion earlier this morning. One concerns the dual objectives of the White Paper, which make it look "awkward". The other deals with the attempt to link tax reform, which is logically initiated by the government, with financial innovation, which could in principle originate with the private sector. I will discuss each in turn.

First, there is the objective of long-run tax reform to reduce the non-neutralities associated with the taxation of capital income in an inflationary environment. This is combined with the attempt to promote the issuance of new types of financial instruments which are perhaps better suited to a world of high inflation and high inflation risk. Second, there is the short-run objective of targeting tax relief to specific sectors: housing, farming, small business. This latter objective is clearly what led the White Paper to propose such severe restrictions on the set of eligible borrowers. It was an attempt to try to make sure that tax savings were passed on to the borrowers and not retained by the lenders. In thinking about the White Paper, it is very important to acknowledge these two separate objectives. Most of the objections of the economists are directed toward the "awkwardness" of combining the two objectives. In particular, they argue that if you want to target short-run relief to housing, it is probably best done outside an initiative whose long-run goal is to reduce a major tax distortion. I think it is important to recognize that John Bossons and the other individuals who worked on the White Paper were very aware of this problem. If you view the present proposals in the White Paper as permanent, then they are a very unattractive way of

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targeting relief to the housing industry. The problem is that the proposals as presented would have the unfavourable resource allocation effects that many speakers have noted. The text of the White Paper emphasizes that these proposals are but the first of a succession of steps. In the final stage, the proposed reforms would be cleansed of many of the resource allocation distortions which they currently imply.

The feature of the White Paper that merits emphasis is the fact that it seeks to combine tax reform with financial innovation. In principle, the two are separable. The question then becomes: is there something awkward about the White Paper trying to create a market for indexed financial instruments when in point of fact these instruments have not been created by private initiative in response to today's environment of high and uncertain inflation? This is a question that economists must address if they then proceed -- in effect -- with specific recommendations which in some sense overrule a null result produced by the market. The null result is the non-issuance of these types of financial instruments. I have spent a considerable amount of time in my prior work on pensions thinking about the issuance of indexed financial instruments. Let me simply tell you what the state of the art is on this subject. On the demand side of the market, both theory and evidence suggest that in a world in which agents are risk averse and in which inflation risk is not diversifiable, indexed instruments should sell at lower expected real interest rates than non-indexed instruments. The puzzle of the non-issuance then focuses on the supply side. If potential issuers of indexed debt could on average reduce the real cost of servicing their debt by issuing indexed rather than traditional bonds, why has this not occurred? In addition, why is the White Paper trying to impose a solution that markets seem not particularly anxious to put forward? I think there are important issues here. Economists have always referred to the externality associated with the start-up costs as a potential obstacle to the issuance of indexed debt by private borrowers. These include standardizing the indenture, clarifying the tax status, and so forth. They impose the costs of innovating on the first firm to issue indexed bonds, which may be an obstacle to their issuance. I think that the argument that start-up costs explain the non-issuance is weakened by the experience in the United Kingdom. About a year ago, marketable indexed bonds were issued by the government, suggesting that certain of the start-up costs had therefore been borne by the government. As yet, there has been no indication whatsoever that private firms will issue indexed debt. So I think that economists who believe in market solutions will need to think carefully about this aspect of the White Paper.

Douglas Purvis

I share the concerns expressed by others with distortions caused by the relationship between high rates of inflation and our tax system. I look forward eagerly to proposals that may reduce those distortions. It goes without saying that one of the lessons we've learned in the past three or four years is that, with inflation rates of 12 or 14 per cent, these distortions are much, much larger than we appreciated during periods when inflation was only 3 or 4 per cent. This suggests, perhaps contrary to what has been said earlier, that really the "first best" solution is to get inflation back down to 3 or 4 per cent. But that's not the purpose of the White Paper. I think that that ultimate policy target shouldn't be lost in the rest of this discussion.

In reading the main papers, I found myself in virtually total agreement with the summaries and conclusions they offer, and I think I'll just use the time I have to elaborate on some areas of agreement. The first one that jumped out at me in the initial pages of Peter Howitt's paper is the puzzle of explaining why there has been so little indexation. Why has the private sector failed to develop its own indexing schemes, given their apparent advantages? I suggest that this is a research project that should be taken seriously. I think the answers to that question are going to be important in understanding the implications of the government-endorsed indexing schemes.

When I read the White Paper, my reaction was one of disappointment. I would like to express my disappointment in general terms. This is just another example of tinkering, and tinkering is dangerous. We have a tax system that is so complicated that we can't hope to understand it, and we

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can't hope to understand fully the implications of minor changes. We have all sorts of distortions in the system. We may introduce some minor changes that hopefully eliminate some distortions, but as we know from the problem of "second-best" theory the interactions of those changes with existing distortions that aren't eliminated are just terribly complex. We always run the danger with that sort of approach to tax policy of creating more problems that we hadn't anticipated, creating the need for further tinkering down the road to try to handle the problems generated by last year's tinkering.

The Department of Finance has been burned on that sort of issue so significantly in the last eighteen months that they are obviously treading carefully. I think we've had an improvement in the procedures by the issuance of a White Paper and the call for submissions to the Lortie Committee in response to them. Nevertheless, the White Paper and the submissions are all being prepared under very, very tight time constraints, and there's just no way we're going to understand fully what the implications are.

Like the authors of the papers, I'd rather see a movement to a much more general tax reform. That, of course, brings up another way in which tinkering is dangerous. Tinkering is especially dangerous if it reduces the political pressures for general reform. So I think one of the roles that submissions to the Lortie Committee can play is to emphasize that these piecemeal changes have to be viewed as complements to rather than as substitutes for full-scale general reform down the road. We are being asked to accept that tinkering or piecemeal policy is necessary right now for various administrative reasons. We are trying to assess the current White Paper in that context.

Even within that context there are serious arguments, put forward in the papers, as to why the scope of the current reforms can be broadened. I think the second role for the submission to the Lortie Committee is to really hammer away at that. I think there are many restrictions in the White Paper that are unfortunate. Presumably there is a fair amount of political pressure behind some of those restrictions. The role of public discussion of the proposals should be to hammer at that political pressure. The principle that Jim Pesando outlined is one that I reacted to when I first looked at the White Paper, and that is that the indexing of financial instruments, and the tax treatment of financial instruments in an inflationary environment, are really logically separate issues. I have given you some administrative reasons for combining them, but nevertheless the White Paper seems to err too much in restricting the changes to those that involve both indexation and modification of the tax treatment at the same time. I think there are arguments to be made for both increasing the amount of indexation that goes on and for improving tax treatment of assets.

There is one issue that I would like to raise that was not raised in any of the papers, and that is the international issue. You know, one of the reasons why governments have been relatively insensitive to the inflation distortion that economists have been talking about so much over the past decade is that there seem to be substantial revenue implications. The borrower gets a full nominal interest reduction from his tax payments, but there is somebody who is receiving that nominal interest rate and who is taxed. By and large, the Canadian government is relatively neutral in regard to revenue implications, at least that's how it seems. In fact, Canada is a net debtor nation. There is a lot of interest deductibility that is reducing Canadian tax revenue and, I suspect, is showing up as increased tax revenue for the U.S. government. In this way, there are transfers of revenue from Canada to the United States. There is a net in the form of withholding taxes trying to capture that. But I suspect that the net is quite inadequate, and that there is in fact a substantial tax revenue transfer away from the Canadian government currently involved in that distortion. Some discussion of this is something you may want to add.

There are other aspects of indexation that could be included in the White Paper proposals. For example, limits on RRSP's have been fixed in nominal terms now for a long time.

I think the lender limits are a particularly undesirable aspect of the current proposals. The papers suggest that in fact the ITD's are likely to bear negative real interest rates, because there's going to be a huge demand on the part of lenders to get into the market and the restrictions on borrowers are going to mean that the market will clear at negative real rates. I have no way of evaluating that estimate at this stage. The arguments seem relatively sound.

I think the papers underestimate the role of the RSIP's. I'm not sure how big a demand there is going to be if the ITD's are brought in at the same time as the shareholder indexed plans. The RSIP's appear to me to be a pretty attractive investment.

I don't know why the proposals want to force the financial system to match lending and borrowing. I suspect the banks are going to be pretty anxious to match them fairly closely anyway. I don't think they are going to want to put up with a long position in that market. I think allowing the banks to get away from an imperfect matching might alleviate the negative real interest rate problem.

The other argument for the lender limits that I found particularly objectionable was the idea that the plan is being introduced with a multiple of objectives. Not only are we going to combine tax reforms but we're going to sneak some fiscal stimulus in at the same time by tying them to specific markets. I think we all agree that it would be much better to use tax reform and the indexation measures to eliminate the distortions in the system. This would alleviate cash flow problems and inflation risk problems so as to lower real interest rates. That's the kind of fiscal stimulus we should look for. It would come just from the improvement of the functioning of the capital markets. Those capital markets can then plan their role of allocating the scarce investment across sectors rather than having the government trying to channel that investment into the specific sectors.

I find it particularly strange that they want to use this plan as a sop to the housing sector. Where is it ever argued that the housing sector has suffered from inflation? What we have here is an instrument that's trying to eliminate some of the problems that inflation has created in our society. We know that people who have benefited the most from inflation are homeowners. Yet here we are going to give them a further sop. There's just no rationale for this at all, that I can think of, or that I can see in the documents.

The other aspect of broadening the indexation reforms is one that was discussed in the Wilson-Jump paper. If, at the same time, the government issued some indexed bonds, that would give it some freedom on the revenue side to broaden the proposals and to eliminate some restrictions. I think that's a very important concept. I'd like to see it emphasized.

Murray Rumack

I think what the government, with good intentions, is trying to do can be summarized in one phrase: "Too much too soon". This rapid overkill is just like the tax reform of 1971-72, which was intended to be integrated within a year or so, and is still being integrated ten years later with a series of reforms and amendments.

Speaking from the real world, I don't know what we are going to do here if we walk this fast. Slow down!! You will get there much faster with fewer problems. How will these proposals, which have been very well stated and criticized, help resolve today's major problems of a poor economy, high unemployment, and high interest and whatever? These are today's problems, never mind ten years from now.

How do we match the requirements of financial supply with financial demand? As far as I know, there have been no real proposals for institutional re-structuring with regard to indexed term loans and indexed term deposits. Are the banks going to be involved in this? Will this pull funds out of the trust companies? Is it good that we encourage this? Or how bad? How about credit unions? What about the indexed term loans? Are they going to be rigidly restricted and be available only for new homes? What about present home owners who have to renew their mortgages? Are they going to be left out in the cold again? Or will indexed term loans be matched by indexed term deposits? I don't know. Will creating a demand for new homes and recycling the construction industry make more rental properties available to people who say they can't get a rental unit now?

The following thoughts bother me as well. If we are going to talk

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about long-term debt, I think "long-term debt" is going to be "very short" because of this special structure we have with interest rates. I think that we have to agree that certain sectors are very hard hit now for money for other than capital expenditure. I don't see anything in this proposal that is going to help industry, large or small, in another important respect; that is, to assist them to obtain not just funds for capital expenditure, which is very important, but something that is very short today - working capital. The greatest need today for most small and medium-sized manufacturing firms is working capital, and I see it every day. People with liquidity problems do not have adequate government-sponsored financial programs. These problems are not being addressed, and I think they are mighty important.

I think something that could be worked into another version of these papers is the lack of effective response by business to the reality of inflation accounting. Firms are buying capital equipment and they are still taking depreciation on a historical cost basis instead of a current cost accounting basis. How are they going to replace that equipment in three or four years? With more debt borrowing? Higher capital cost allowance? Maybe; I don't know. These problems aren't adequately addressed. Maybe they weren't intended to be addressed here, but I think that real accounting is important whether prices rise or fall, and they could go either way. There is a lack of understanding of what is really happening and of what the government is trying to work out in the midst of the pitfalls of this complete revolution in tax-thinking and economic planning.

New concepts are going to hit many of us. For example, we are told that if there is an interest income accrual, realized or unrealized, we are going to pay income taxes on it immediately. For example, a client and I walk into the bank and say "Mr. Banker, the client now has a loan of $180,000. The five shareholders of this small corporation each need another $5,000 to pay income taxes on their unrealized accrued interest income. That's a total of $25,000 for income taxes, on profits they have earned on paper only. I don't know when they are going to realize it, but they need it now." Where will this cash come from? The banker might say: "Your debt/equity ratio is..... You just can't go any further." Well, where do they go now? Sell off? To whom? Is that the name of the game? If they do sell off, will they realize the profit they "booked" last December, the income tax upon which they are now trying to meet in April? These are some of the serious (and not so simple) problems we face.

I was impressed by all the papers. Take Dr. Marchant's paper dealing with conventional and ideal financing, with his examples of depreciable assets. It's a tremendous illustration, and I think it brings the whole picture to life in one paper.

William Scarth

Some Macroeconomic Implications of Including Only Real Interest Payments in Tax Calculations

INTRODUCTION

I agree with the consensus that has already been expressed - that the eligibility criteria involved in the White Paper proposals must be dropped if large inequities and stockflow mismatchings are to be avoided. Nevertheless, while I support this call for generalizing the indexing proposals, I wish to emphasize that there are costs involved with taking indexing too far.

Indexing is not a substitute for stopping inflation, since it raises the costs of real shocks by limiting the ability of relative prices to change. Even from an aggregative perspective, wherein no allocation problems exist, the extent of indexing affects the "built-in stability" properties of the economy. In the White Paper, it is stated (p. 39) that "there may...be important longer-term benefits of the measure in smoothing out the cyclical variation in economic activity". Since none of the earlier speakers have commented on this claim, I limit my remarks to its evaluation,

In the next section I exclude the inflation component of interest from tax calculations in an otherwise standard macroeconomic analysis of an open economy. This permits an estimate of the monetary policy that would be induced by this general tax change. In the final section of the note, I add the government financing constraint to the analysis, to focus on the built-in stability question.

LIMITING TAX BASE CALCULATIONS TO REAL INTEREST PAYMENTS

The short-run macroeconomic effects of removing the inflation component of

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nominal interest payments from taxes is now examined in an IS-LM framework. Consider first the LM curve:

$$m-p = ky-hr(1-t) = ky-h(1-t)(r-\dot{p})-h(1-t)\dot{p}$$

where m, p and y are the logarithms of the nominal money supply, the price level and national output, and $\dot{p}$, r and t are the inflation, nominal interest and tax rates. k and h are positive parameters, so that money demand depends positively on output and negatively on the post-tax nominal interest rate. The latter effect has been split into the real interest and pure inflation components for convenient reference. If generalized, the government's tax proposal involves removing the $ht\dot{p}$ term on the end of the equation, making the revised LM equation become:

$$m-p = ky-hr(1-t)-ht\dot{p}.$$

The direct yield effect of the tax proposal can be estimated by realizing that it reduces money demand by amount $ht\dot{p}$. Liquidity preference is down because the reduced tax obligation makes bonds more appealing. Given the remaining features of the standard macro model (for example, see Buiter and Miller (1981), especially pages 147 and 162), this shift lowers interest rates and raises output (favourable effects in the present circumstances), but it simultaneously raises inflation and lowers the international value of the domestic currency (undesired effects). Rather than speculate on the likely size of these several effects, we simply calculate the size of the stock increase in the money supply that would be equal to this tax-induced decrease in money demand. Setting $dm = -ht\dot{p}$, and realizing that e, the interest elasticity of money demand, equals $-h(1-t)r$, we have $dm = et\dot{p}/r(1-t)$. Inserting representative parameter values ($t = .4$, $r = .16$, $\dot{p} = .12$, $e = .1$), we see that the tax policy is equivalent to a 5 percentage point increase in the money supply. Even if implementation lags spread this influence over 2 or 3 years, this must be regarded as a fairly large macro shock, when compared with current target rates of money growth (6 per cent per year).

Thus far, we have considered only the direct yield effect of the tax proposal on the LM curve. Bonds would also be made more appealing by the reduced inflation risk. Bossons has estimated this effect to involve LM shifting down (with reference to the interest rate axis) by about 2 or 3 percentage points. Taking both effects together, we are forced to view the generalized tax proposal as equivalent to a very expansionary monetary policy. The government has consistently rejected such an explicit monetary policy in recent years, so any forecast of the effects of the generalized tax proposal must involve the assumption that the Bank of Canada would cut the money supply in a big way. That is, the Bank would continue its policy of counteracting shifts in the money demand function. If the Bank accomplished this, the tax proposal would have *no effect* on interest rates, output, inflation or the exchange rate (assuming no IS curve shift). The important point is that *the induced large contractionary monetary policy would "use up" the public's increased willingness to hold bonds*, so that the growing reliance on bond-financing the large budget deficit would *continue to be a problem*. The nature of this problem is discussed in the next section. First, however, we must briefly consider the effects of the tax proposal in the IS sector.

The argument in the previous four paragraphs has ignored any effect of the tax proposal on the position of the IS curve. In fact, there are many competing effects involved. For example:

- The rental cost of capital is increased by the loss of deductibility of nominal interest. For example (ignoring depreciation), rental cost rises from $r-\dot{p}/(1-t)$ to $r-\dot{p}$, where t now stands for the profits tax rate. Other things equal, the IS curve shifts left, leading to lower interest and output rates. The size of this effect may be small, however, since only foreign tax parameters affect the rental price of capital for many firms operating in Canada.

- Other reasons for IS to shift left are that the tax proposal provides an alternative to housing as a hedge against inflation, and that savings may depend to some degree on interest rates.

- The IS curve could shift right due to the potential decrease in risk (elimination of the "tilt" problem).

In our analysis above, we have assumed that these competing effects in the IS sector just cancel each other. Obviously detailed empirical work is required on this point. However, whatever the results of this empirical assessment, our analysis shows that the tax proposal cannot both raise output and lower interest rates, unless current monetary policy is changed.

THE INSTABILITY OF BOND-FINANCED BUDGET DEFICITS

Much of the discussion at the conference has emphasized that the nominal budget deficit is not as bad as it seems, and that much public education is required in the interpretation of data on the deficit in inflationary times. I think that this "little learning" might prove a "dangerous thing", since the proposed amendments to the figures distract attention from the implications of the government budget constraint for price level stability.

All the existing literature stresses the instability of bond-financing (for example, Scarth (1975, 1979), Turnovsky and Scarth (1981), Fischer (1981)). This result is most robust, since the various studies have allowed for horizontal or vertical aggregate supply curves, lags in the aggregate demand sector, and adaptive or rational expectations (even with full allowance for the "jumps" methodology to exclude unstable roots). Indexing the government bonds worsens the problem. The intuition behind the result is simply that bond-financing involves meeting today's deficit by issuing promises to pay out more in future periods. If these promises are fixed in nominal terms, inflation lowers their real value, so the real deficit can be reduced and stability is at least possible. However, if these promises are fixed in real terms, the deficit cannot be reduced by inflation, and the government budget identity remains a destabilizing mechanism.

How does this analysis fare when confronted by empirical evidence? Two brief references are helpful:

- Fischer (1981) has examined a cross-section of 40 countries and concluded that the inflationary impact of the 1974 oil shock was significantly stronger for those countries that had adopted bond indexation.

- Scarth (1979) has examined the two previous periods of bond-financed federal deficits for post-war Canada (the Coyne affair and the 1969-70 fight against inflation). The exchange rate crises and related develop-

> ments are stressed as indications of the "instability" predicted by the standard theory.

Indexed bonds make these problems more severe.

Bossons has discounted this analysis on the grounds that additional lags in the aggregate demand sector can change the results. While there is a literature supporting this view (for example Smyth (1974) and White (1979, p. 598)), it has not been extended to models including the government budget identity. In addition, no one should expect a disaggregated econometric model to reliably uncover both the basic slope coefficients and the lag distributions. It has also been suggested that the instability prediction can be discounted since "supply side" considerations are "ignored" in the government budget identity literature. This can hardly be a telling criticism, however, since the horizontal supply curve case has been highlighted in this literature.

In conclusion, the tax proposal concerning bond interest decreases the built-in stability properties of the economy. This cost could be significantly reduced, however, if the government combined the introduction of this tax change with other policies that cut the budget deficit.

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Lawrence B. Smith

As Peter Howitt's paper indicated, a major impact of the introduction of indexed term deposits and indexed term loans would fall upon the housing market and the residential construction industry. The paper suggests that the proposals would greatly benefit prospective homeowners by placing housing within the affordability of many more households. However, there are two aspects to the proposal and the paper blurs some of the distinctions that follow from this fact. The two aspects are:

- the encouragement or creation of indexed mortgages - or what are technically known as price level adjusted mortgages - and
- the tax-exempt aspect of the inflation component in interest rates.

The primary impact on housing affordability comes from the indexation feature, since it is the indexing which eliminates the "tilt" or cash flow problems associated with inflation and the present level payment mortgage. The tax exempt aspect will lower the nominal interest rate and hence could lower the price adjustment feature in some indexed mortgage schemes - but not in the government proposals, since the indexation will be based on inflation rather than the shadow level payment mortgage rate. In fact, except to the extent that the government plan increases savings, if it does, the increased affordability comes purely from the indexation, and this is an increase only in the sense of reducing cash flow constraints, not the real cost of housing.

The question must be considered, as it was by Howitt, why institutions would participate in a government-encouraged index scheme when they have not introduced incremental lending schemes on their own.

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The answer is likely to be the tax-exempt feature, since this will provide the impetus for the scheme. It must be recognized, however, that the tax-exempt aspect will not lower housing costs. On the contrary, to the extent that the introduction of partial tax-exempt instruments provides an alternative to homeownership as an inflation hedge, the expected home price appreciation will decline and the user cost of homeownership will actually increase, not decrease.

Now, if the overall plan works, what is likely to happen? First, as Howitt indicated, it will create a dual housing market with new housing getting financing benefits not available to existing housing. This is blatantly inequitable. Two identical houses, one owned by a builder (and hence likely designated as "new") and one recently purchased by someone who had to move because of, say, a job transfer may have very different financing available to them, and hence quite different capital values. If indexed term loans are "due on sale", the maximum inequitableness and distortions are introduced.

Second, since these are term loans, what happens when the term expires? Do loan renewals count as new or old? If old, they perpetuate the inequitableness introduced on the initial financing and virtually ensure that all new housing must have this form of financing, or else resale home prices will suffer. If, to overcome the resale issue, loans are repayable on sale, short-term homeowners may experience large capital losses on resale and refinancing, thereby reducing liquidity and increasing market distortions. If, to cover these issues, loan renewals are considered new loans and not eligible, we will likely have a repeat of the AHOP fiasco, since borrowers will not only be faced with higher nominal mortgage balances to refinance but also with the discontinuation of indexing.

Third, Howitt's paper suggests that the availability of indexed term loans will reduce house prices in the existing market. It might, in which case there could be major dislocation in the home-ownership market. Given the recent price performance in many real property markets, the value of many homes with existing finance could decline below the outstanding mortgage balance. This would trigger mortgage defaults, foreclosures, and major housing market disruptions and hardships. On the other hand, the more likely scenario is the capitalization in new home prices of the reduced financing costs. Since new housing starts annually account for only approximately 2 per cent of the existing stock, and since all demand creation will be focused in this sector, most of the financing effect is likely to be capitalized in new home prices.

Although all the complications introduced by the plan cannot be fully overcome, most could be by extending the program to all debt instruments. This would eliminate the inequitableness for existing homes, it would solve the refinancing problem, it would prevent the creation of a dichotomized housing market, and it would prevent the concentration of demand creation in purely the new housing sector. Finally, since approximately 65 per cent of new home purchasers are former owners, the maintenance of values and generation of existing home sales would provide sufficient stimulus for new construction to largely offset the advantage given to new construction by confining indexation to this sector.

A cursory analysis of the effect of indexed term loans and deposits on the home-ownership sector suggests that the proposed plan will introduce a great deal of inequitableness and distortion into the market, while relieving the cash flow constraints but not the real cost of home-ownership for first time home buyers. The plan will not reduce the real cost of home-ownership because it only alters the time stream for mortgage payments and not their present value. On the other hand, all the advantages of indexation could be retained and extended to the entire market, and most market distortions avoided, if the plan were extended to all debt instruments. This extension should, therefore, be urged strongly.

John Todd

It is apparent that the proposals for indexed term deposits (ITD's) and indexed term loans (ITL's) are workable only if real interest rates for the ITD's and ITL's can be found which are attractive to depositors and borrowers, respectively. Furthermore, there must be an adequate spread to make the indexed instruments attractive to financial institutions. Simply, the market only works if there are willing borrowers, willing lenders, and willing intermediaries.

These interest rates must also be at a level such that there is an equilibrium between indexed and conventional instruments and between deposits and loans. If equilibrium is not achieved, some rationing mechanism will have to be introduced to maintain an appropriate balance.

Without a reduction in the total tax burden of the lender and borrower for indexed relative to conventional instruments, the only interest rate at which both lenders and borrowers will be willing to accept indexed instruments is one for which the after tax real return is identical to that for conventional instruments.

For example, assuming 12 per cent inflation, 50 per cent marginal tax rates for lenders and borrowers, a 16 per cent rate on conventional deposits, and a 20 per cent rate on conventional loans, depositors would earn -4 per cent in real terms and borrowers would pay -2 per cent in real terms on loans after tax, assuming deductibility.

The equilibrium ITD real interest rate would therefore be -4 per cent, assuming negative real interest was not deductible (-8 per cent if negative interest was deductible), while the equilibrium ITL rate would be -2 per cent assuming negative interest costs were not taxable (-4 per cent

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if they were). These numbers imply that the bank spread is reduced unless negative interest is deductible and taxable. It is also evident that, in the absence of a tax saving, significantly negative real interest rates will have to be charged on deposits and paid on loans in order for the instruments to be attractive to both depositors and borrowers, and for there to be an equilibrium (indifference) between conventional and indexed instruments.

This conjures up a scenario in which depositors are charged for the privilege of holding ITD's while borrowers are paid to accept ITL's.

Of course, the fact is that the indexed instruments will not attract borrowers and lenders with identical marginal tax rates. The ITD's will attract high marginal tax rate savers, while the ITL's will attract low marginal tax rate borrowers. The effect of this will be that the portion of the tax base represented by inflationary gains will be transferred from high marginal tax rate savers to low marginal tax rate borrowers.

This transfer will reduce the total tax burden and offer a saving which will be divided between the saver, the borrower, and the bank. By restricting access to ITL's, the proposed indexing policy appears to bias the system in favour of borrowers as the beneficiaries of the tax saving. This is consistent with the apparent stimulative objective of the proposal.

On this basis, the numbers look quite workable. A depositor with a marginal tax rate of 50 per cent would accept any real interest rate better than -4 per cent, while borrowers with a 25 per cent marginal tax rate would benefit from any real interest rate below 4 per cent if conventional loan rates are 20 per cent. This leaves an 8 percentage point spread to cover the bank spread, higher interest to depositors, and lower interest to borrowers.

It appears to me from this analysis that the proposals serve more as an economic incentive than as a corrective measure which compensates for the effects of inflation. Correcting for the effects of inflation would involve biasing the benefits in favour of savers, not borrowers.

An alternative view of the issue is that the current tax system, which taxes nominal capital gains, inherently involves a capital tax which increases with the rate of inflation. As the inflation rate has increased, government has accepted the escalating capital tax, since it has been a source of revenue. The proposed ITD/ITL instruments and the RSIP each serve to remove this capital tax for specific investments; however, a more comprehensive approach is needed to equitably remove the effects of inflation. This has been a common theme throughout the conference.

Perhaps revenue implications are as important an element as administrative problems in Mr. MacEachen's decision to take such a small first step in the correction of the inequities which result from inflation. Whatever the reason for it being small, this first step is only attractive if further steps follow. If further steps are planned, I feel that it is important to map the route out now. This seems necessary in order to ensure that the existing proposals are a logical first step and to establish some degree of commitment to future modifications of the tax act which will further reduce inequities. If a more comprehensive approach does not follow, it may well be that the MacEachen proposals will decrease equity, since their applicability is so limited, rather than increase it. Although this may be consistent with a goal of helping selected sectors (small business, housing, farming, and fishing), there are better and more direct ways to give tax assistance if financial assistance is the true objective of the policy.

Turning to the question of why the market has not already provided indexed instruments in response to inflation risk, I would suggest that it is because the market has responded by shortening the term of deposits and loans. As Professor Gordon mentioned, the inflation risk on short term loans and deposits is minimal for all parties; hence, by shortening the term, inflation risk is reduced without having to introduce radical new investment instruments. It may well be that the shortening of terms has been sufficient to reduce inflation risk enough to nullify the primary attraction of indexed instruments.

Ronald G. Wirick

My comments will reflect a position taken by many of the previous discussants and, indeed, as I read them, by the authors of the commissioned papers. On the one hand I have strong sympathy for and support the stated long-term goals of the White Paper - to help alleviate some of the adverse efficiency and equity effects of inflation by reforming certain aspects of the tax system and by promoting the development of indexed financial contracts. (As an aside I would argue that the lack of indexing and other financial innovations to an inflationary environment may be traced substantially to the existence of nominal tax biases and uncertainties. In the labour market, where such tax issues do not arise. the advent of high inflation has led to widespread adoption of cost-of-living adjustments, which provide partial indexing protection. Although other differences between financial and labour markets may help explain the divergent reaction to aggregate price uncertainty, I suspect that tax effects are a central reason.) The problem that concerns me is that the laudable and important goals of the White Paper are being addressed through a set of particular proposals which, in their present form and undertaken in isolation, could create serious new problems without meeting the fundamental objectives.

To a large extent these difficulties stem from an obvious and understandable desire to design the proposed tax changes in such a way as to get the maximum possible fiscal "bang" out of the revenue "buck". Yet as acute as the unemployment and sectoral stresses are in the economy today, the appropriate way to address such cyclical problems is through specific interim stablization initiatives - not through adulterations of fundamental

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tax reform measures. In particular, I object to the restriction that indexed term loans (ITL's) can only be used for purchases of new homes and new depreciable property of small businesses. This creates two major problems. First, it directly involves the federal government, in a qualitatively new way, in the allocation of credit in Canada. The potential economic distortions stemming from such a precedent should not be underestimated. Second, the restriction raises the critical question of transferability: if a "new" asset is later sold, will the new owner also be eligible for ITL financing? Because of their long economic life and preponderant role in household balance sheets, the issue is particularly acute for houses. If transferability of indexed home mortgages is not allowed, then the attractiveness of such instruments, and the consequent effect on new house demand, will be greatly reduced. Furthermore, labour mobility and the efficient use of the housing stock may be inhibited. Indeed, the drawbacks of non-transferability are so severe that it would seem unlikely that such an approach would be taken. However, full transferability of indexed mortgages, while eliminating these problems, would also accentuate another difficulty, for, as Peter Howitt argues in his paper, a significant price wedge would be driven between "new" houses (built after, or newly built but not yet sold, on June 28, 1982) and "old" ones.

The size of this wedge would depend on a multiplicity of factors. With a number of heroic assumptions and a few rough approximations, however, one can calculate an illustrative magnitude. Consider two houses identical in every respect except that one qualifies for ITL financing and the other does not. Assume that the new-house qualifying restriction is expected to be maintained indefinitely, and that the expected inflation rate is 10 per cent, the conventional (nominal) mortgage rate 18 per cent, and the indexed (real) mortgage rate 2 per cent. If new and old housing prices are expected to appreciate at the same rate in the future and if the desirability of financing is based only on its expected costs (abstracting from the risk-minimizing and liquidity virtues of an indexed mortgage), then the price wedge simply should be the discounted present value of this expected differential financing cost. Specifically, consider the case of the owner of an "old" home who wants to sell his house when an identical house can be bought for $100,000. If a prospective buyer has a $40,000 down payment and wants to amortize his mortgage over 25 years, then the seller also could charge $100,000, if he were willing to buy down the conventional mortgage to 12 percent. This "subsidy" can be approximated by annual payments of $4,300 for 25 years. Discounting at the nominal interest rate of 18 per cent gives a present value of about $18,000. Actually, the subsidization would have to be bunched somewhat in the early years to allow for the quicker reduction of principal at the lower rate; hence, the present value would be somewhat higher than this. In other words, an effective price wedge of about 20 per cent has been driven between two identical properties. Although sensitive to some of the underlying assumptions, this calculation indicates that the price wedge could be of very significant size.

I am less certain than is Peter Howitt that this wedge will be manifested exclusively as lower prices for existing houses, rather than as higher new-house prices. The inventory of unsold "new" houses, while large by historical standards, is still quite small compared to the total potential stock of new-house demand. On the other hand, the number of "unhoused" potential purchasers is probably relatively small compared to total demand (Lawrence Smith states that two-thirds of new-home purchasers are current homeowners). I would guess that in the very short run the wedge would result in fairly strong upward pressure on new-house prices and some additional downward price pressure for existing homes. Since real housing prices are already declining, in the immediate aftermath of the adoption of the White Paper proposals, it is quite possible that new-house prices might rise by a small to moderate amount while existing houses experience an intensified price drop. In the longer run, if the restrictions on indexed mortgages are maintained, the wedge should appear even more as a fall in "old-house" prices, since the long-run housing-supply curve is probably fairly flat.

The redistributional consequences of such a situation would be enormous, and it takes little imagination to forecast the intensity of the resulting howls of outrage from homeowners. A further irony is that, in addition to these political and equity problems, there could be strong adverse effects on aggregate demand. Work I have recently done on Canadian savings/ consumption functions strongly suggests that any major drop in housing values would significantly decrease Canadian consumer expenditures. In short, any stimulative affect of the proposals on residential construction may be largely offset by drops in aggregate demand in other sectors.

All these problems stem from the ITL borrowing restrictions. What, then, would be the result if access to ITL's was broadened, along the lines recommended by Howitt and by Jump and Wilson, to include all sectors and to permit purchases of both new and used capital assets? I believe this would be preferable to enacting the proposals as they now stand. (I also support the idea of broadening lending eligibility to allow institutional investors, such as pension funds, to participate.) However, because nominal interest payments on conventional loans would remain tax-deductible to businesses, even with such a broadening, ITL's should have very limited appeal to taxable firms. In practice, ITL's likely would be mainly utilized by homeowners (and perhaps by loss-ridden firms such as Chrysler, Massey-Ferguson, and Dome Petroleum). I would argue that this skewness in use represents an efficiency loss, since it would further increase the present bias of the tax system in favour of housing investment at the expense of business investment.

This bias would exist even in a world with a fixed aggregate price level, because neither the imputed income nor the capital gains resulting from home ownership are taxed. In an inflationary environment, the nominal-income distortions of the tax system exert two opposite influences on the bias. The deductibility of nominal interest payments lowers effective business tax rates, while the taxation of nominal inventory profits and historical-cost basis of capital consumption allowance (CCA) raises these rates. As I understand it, the consensus opinion is that the latter of these two influences is the stronger for the non-financial corporate sector as a whole. If this is true, then the distortion in favour of housing investment is even greater in an inflationary environment. Given such circumstances, I feel very uncomfortable about the introduction of measures such as ITL's, which, in isolation, would make housing even more attractive relative to business investment. (The simultaneous move to partially shield nominal capital gains from taxation, through RSIP's, may partially offset this additional bias, although I would judge that some net new favoritism will remain.)

In the short run, of course, it is very tempting to direct tax relief to the housing sector. However, although much of the stress in this sector can be attributed to cyclical factors, some of the difficulties undoubtedly reflect a necessary, though painful adjustment to the housing boom of the early and mid-1970's, when real housing prices rose out of proportion to the long-run cost of production. To some extent, the current problems in the housing market are a result of the consequent secular overbuilding. To try to meet this problem by tax-concessionary stimulus of housing demand, and hence housing investment, is to run the risk of further housing instability in the immediate future. In the long run, any permanent stimulation of housing investment must be accompanied by some combination of increased domestic saving, decreased domestic business investment, and (most likely for an open economy like Canada) increased foreign saving. In the steady state this will mean a depreciated Canadian dollar to generate the increased net exports necessary to service our higher level of international indebtedness. (We will pay for higher-cost housing services through decreased domestic consumption of non-housing goods and services.)

I am sure that to this point I sound quite negative in my comments on the White Paper proposals. This is a valid impression, assuming the ITD and ITL measures are enacted with their present narrow restrictions on the destination and nature of indexed-fund use. (I have not spoken about the RSIP proposal, but hold similar concerns that serious adverse effects can occur because eligibility is limited to common shares of listed Canadian corporations.) With broadened eligibility, however, the White Paper measures become significantly more attractive - particularly if the Howitt and Jump/Wilson suggestions that the federal and provincial governments issue indexed bonds are also implemented. Such a package of initiatives could do much to ameliorate inflation-induced inequities in the taxation of investment income and to encourage other financial innovations which could help Canadians both to understand and to cope with the individual economic decision-making problems that arise from inflation. These benefits may outweigh the pro-housing bias of such broadened initiatives.

It would be preferable, however, to eliminate this bias. This means instituting some form of inflation-accounting for business as well as investment income. The White Paper provides a cogent and persuasive summary of the obstacles to any ideal inflation-accounting solution. However, I remain optimistic that some reasonable, welfare-improving, though imperfect, approach can be designed. For example, the government might allow the indexation of capital consumption allowances (CCA) plus last-in, first-out (LIFO) inventory accounting - but only to the extent that any resulting tax benefit exceeded the present implicit savings from the deductibility of the inflation-component of nominal interest payments. Businesses would therefore have a choice between traditional and (crude) inflation-accounting methods of computing their tax liability. Assuming the standard wisdom is correct (that on average inflation has increased effective corporate tax rates), then a large number of firms would opt for the latter. For these firms, there would be no tax-disincentive to using ITL borrowing, hence in a broadened ITD/ITL system they should be willing to compete with homeowners and governments for such funds. Of course, given the wide variance in debt-equity ratios, inventory costs, and depreciation rates, a number of firms and perhaps whole industry sectors would opt for the present accounting approach; not all bias would be eliminated. Yet I think that there would be a significant improvement upon the results of just broadening ITD/ITL coverage. A major portion of inflation-induced distortions of the tax system would be ameliorated without aggravating the current favoritism of housing over business investment.

Such an approach would also have the major virtue of minimizing the problems of windfall redistributions and transitional procedures mentioned in the White Paper. (Some shifts in tax liability would still occur, since the loss in tax revenue to the government as a result of allowing such flexibility could be only partially recouped through the savings on indexed government bonds - especially in a market in which government issues must compete with corporate indexed bonds. Therefore, some compensating tax increases and/or elimination of present tax concessions would be necessary.) The remaining two problems specified by the White Paper - the dating of asset and debt holdings and the international redistribution of tax liabilities - would still have to be surmounted. I would be hopeful that this could be done through some judicious compromise between the possible and the ideal.

I believe it would be desirable to have simultaneous adoption of the entire package of reforms - broadened ITD/ITL and RSIP measures, indexed government debt instruments, and (crude) inflation-adjustments for calculating business tax. This obviously means that the initiatives will have to be postponed beyond the time horizon apparently envisioned by the Minister of Finance. This is not necessarily a disadvantage. Some delay is unavoidable, and indeed desirable, if the ITD/ITL and RSIP schemes are to be significantly broadened; such re-design takes time. However, if it is decided to move ahead with the investment income tax changes before the business income tax measures can be implemented, then I think it is important to at least have some concurrent outline of and public commitment to the latter. The shorter the delay between the two, the better the chance of avoiding the long-term investment distortions of partial measures.

Appendix: On the Design of Indexed Mortgages

John Bossons

The White Paper on inflation and the taxation of investment income is careful to note that indexed loans may be structured in a wide variety of ways. The only constraint imposed on mortgage contracts by a requirement for indexation is that the outstanding principal be indexed in the calculation of interest, so that the return to the lender may be fixed in real terms over the term of the loan contract. Such indexation is required in order to match the actual return on indexed mortgages with corresponding costs of funds obtained from indexed term deposits.

The indexation of term deposits, mortgages, and other lending instruments in which indexed deposits may be invested has two purposes. First, the use of indexed instruments provides a clear definition of real interest payments, and so simplifies the administration of a tax scheme in which only real interest is taxed. Second, by eliminating uncertainty about the real rate of return, the use of indexed debt instruments encourages depositors to commit funds for a longer duration. The resultant lengthening of maturities in the private debt market would permit borrowers to obtain long-term funds on which the real interest cost is less volatile. If indexed loan contracts are also designed to have less volatile fluctuations in cash payment requirements, the resultant reduction of risk for the borrower can significantly increase the attractiveness of investments financed by loans.

The purpose of this paper is to describe alternative ways in which indexed mortgage loans may be designed, and to discuss the relative

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riskiness of these alternatives for borrowers and lenders. In the first section, two alternative designs are presented which are at opposite extremes: one is designed to match the characteristics of existing conventional loans as closely as possible, while the other is designed to be fully indexed in all particulars. Though neither of these extreme alternatives is particularly attractive, they serve to indicate the wide range of loan designs which are consistent with using indexation to remove uncertainty from the real return to the lender.

The remaining two sections focus on the derivation of a design for indexed mortgage loans which is more efficient than either of the two extreme cases described in the first section. The section describes the several dimensions of risk which have to be taken into account in such design. A prototype design which minimizes these different risks is then described in the final section .

The major conclusions of this paper are as follows:

- An indexed mortgage can easily be designed to be fairly similar to a conventional variable-rate mortgage. Such a design has the advantage of fitting easily into the current offerings of financial institutions. However, it is more conservative than necessary in the speed with which real principal is reduced, while at the same time risky for the borrower because of the unpredictability of monthly payments.

- Mortgages with completely indexed payments would expose lenders to an excessive degree of risk if loan-to-value and debt service ratios were not significantly reduced.

- Conventional mortgage designs are severely distorted by inflation. At current inflation rates, conventional designs are inefficient, chiefly because real monthly payments after the first ten years are far too low.

- The most effective design for an indexed mortgage is one in which payments are only partially indexed, the amortization period is substantially reduced, and real monthly payments decline at a moderate rate. Such a design can reduce risks for both borrowers and lenders, and is potentially very attractive to borrowers.

TWO EXTREME ALTERNATIVES

The range of possible designs for indexed mortgage loans can best be illustrated by presenting two examples that are at polar extremes. The two examples differ primarily with respect to the indexation of monthly payments and the extent to which the inflation adjustment on outstanding principal is capitalized. In the first case, there is no capitalization of the inflation adjustment and the full inflation adjustment is paid to the lender on a current basis; in the absence of unanticipated changes in the rate of inflation, there is no planned escalation in nominal monthly payments. By contrast, in the second example, monthly payments are fully indexed to an index of the general price level and most of the inflation adjustment of principal is capitalized.

The first case is an extreme in which the indexed mortgage is designed to be as close as possible to existing variable-rate mortgages. The second is also an extreme (though at the opposite end); it corresponds to indexed mortgages recently introduced by lending institutions in Denmark.

Case 1: no capitalization

In this case, the borrower is required to pay to the lender the full amount of the expected principal adjustment required by indexation. This is virtually equivalent to what happens with conventional variable-rate mortages (VRM's), in which currently-accrued interest is based on a fluctuating nominal rate of interest that reflects the current rate of inflation. (In fact, some capitalization of interest and smoothing of payments is permitted by VRM contracts now available in the market. The comparable VRM would be one with no capitalization of interest.)

There are two major differences between this type of indexed mortgage and a conventional VRM with no capitalization. First, the indexed mortgage would benefit from the relatively lower real interest rates on indexed term deposits that would result from imposing taxes only on the real interest accrued on such deposits. Second, even though borrowers would continue (as with VRM's) to be subject to changes in debt service charges due to fluctuations in the rate of inflation, they would no longer also be subject to yearly fluctuations in the real interest rate.*

In order to compare an indexed mortgage with no capitalization to a conventional mortgage, it is necessary to make assumptions about mortgage interest rates and inflation rates. For the purpose of the comparisons, it is assumed that the conventional mortgage interest rate is 19 per cent, that the inflation rate remains at current levels (12 per cent), and that the real rate of interest charged for an indexed mortgage would be 2.5 per cent.

The indexed mortgage with no capitalization works as follows: A base payment level is computed by deriving a uniform nominal blended payment of interest and principal which causes the original nominal principal to be fully repaid at the end of the desired amortization period (assumed to be 25 years, as for conventional mortgages), based on a discount rate which is equal to the real rate of interest on the mortgage. The actual initial monthly payment is then calculated by adding to this base payment level one-twelfth of the inflation adjustment expected to be required for the first year. Assuming an expected inflation rate of 12 per cent and annual compounding, this additional amount would be equal on a monthly basis to 1 per cent of the initial loan principal. At the end of the year, the actual inflation adjustment would be calculated using the actual inflation rate over the twelve months ending two months before the end of the year; any difference between the actual and expected adjustments would be added to the outstanding principal and recovered from the borrower through increased monthly payments in the subsequent year. By following the same procedure in subsequent years, monthly payments are modified each year so that no inflation adjustments to principal are capitalized for more

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* It is worth noting the extent to which actual fluctuations in nominal short-term interest rates are the result of fluctuations in real interest rates. Over the five years 1977-81, the range of quarterly averages of nominal and real interest rates and of quarter-to-quarter inflation rates were as follows (expressed as percentages):

	Range of values	Width of range
90-day prime rate	7.3 to 21.0	13.7
Quarterly percent change in CPI	6.3 to 12.9	6.6
Implicit real prime rate	-1.9 to 8.2	10.1

The range of quarterly values was greater for the implicit real prime rate than for the quarter-to-quarter inflation rate in each of the five years.

than twelve months. In most cases, the expected rate of inflation each year would simply be assumed to be the same as the actual inflation rate in the previous year.

The planned pattern of payments for such a mortgage loan can be calculated by assuming that the actual inflation rate never departs from the level originally expected. In the two parts of Figure 1, monthly payments and outstanding principal for a 2.5 per cent indexed mortgage are compared to those for a 19 per cent conventional fixed-rate mortage, assuming a 12 per cent inflation rate over the entire 25-year amortization period. As these charts indicate, the patterns of the two mortgages are similar, in that the decline in real payments and real outstanding principal is very rapid in both cases. In fact, this design for an indexed mortgage is actually more conservative than a conventional variable-rate mortgage loan with no capitalization of interest. Payments also decline faster than for a conventional 19 per cent fixed-rate mortgage. As a result, relatively little of the benefit of reduced interest costs is reflected in reduced initial monthly payments; most of the interest rate reduction is effectively allocated to reducing nominal payments in later years, even though nominal incomes will then have almost certainly increased substantially.

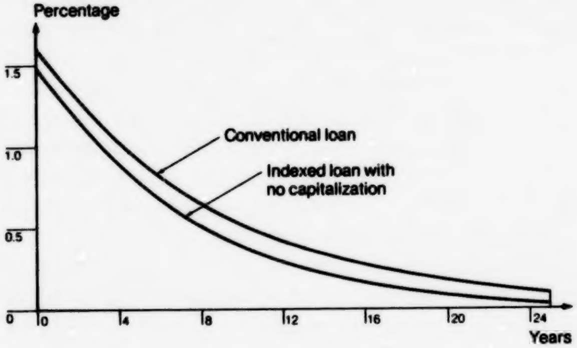
The range of year-to-year fluctuations of monthly payments implied by the no-capitalization design for an indexed mortgage loan is substantial. The fluctuations are the result of two compounded factors: (1) year-to-year changes in the average inflation rate, and (2) the additions to payments required to eliminate the results of unexpected increases in inflation in the previous year. When (as in recent years) the average rate of inflation rises in each successive year, the second factor magnifies the effect of the first. The two together yield substantial potential variability in payments, and so render uncertain the borrower's ability to meet the required payments. This source of uncertainty causes risk for the lender as well as for the borrower.

It is likely that the no-capitalization design in indexed mortgage loans would be modified in practice so as to provide greater smoothing of payments. However, this would require some departure from the principle of "no capitalization". Precedents for such departures are provided by current variable-rate mortgages such as those offered by the Canadian Imperial Bank of Commerce and the Caisses Desjardins.

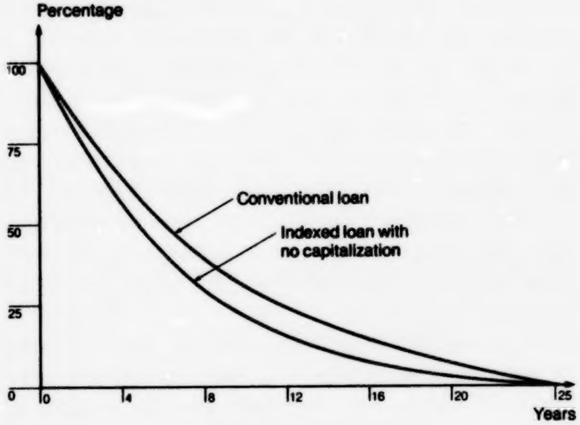
FIGURE 1: Comparison of an indexed mortgage based on no capitalization of inflation adjustment with a fixed-rate conventional mortgage

Note: All values (both payments and principal) are expressed as percentages of the original principal amount of the loan.

A. Real monthly payments



B. Real principal outstanding



Assumptions:
1. Conventional interest rate of 19 per cent.
2. Real interest rate on indexed loan of 2.5 per cent.
3. 25-year amortization.
4. Inflation rate of 12 per cent.

Case 2: Full indexation of payments

This case is at the opposite extreme from Case 1. In this case, monthly payments are held constant in real terms, but escalated up each year by the price inflation during the preceding year. Because real payments are constant, this mortgage design is equivalent to that of a conventional mortgage in a zero-inflation world.

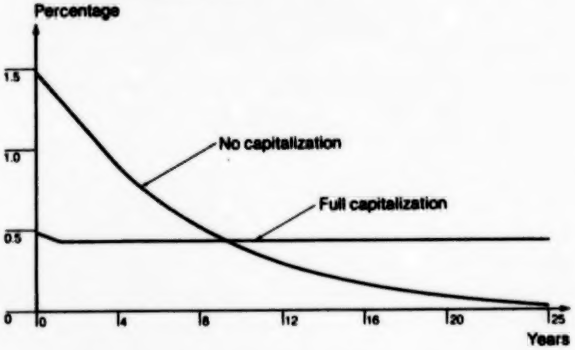
This design is used, with one modification, in the indexed mortgages available in Denmark since April 1982. The modification is that the annual increase in nominal payments is indexed either to the rate of price inflation or the rate of increase in an index of average wages, whichever is lower. In years in which wages do not increase as fast as prices, monthly payments are indexed only to the wage index. Outstanding principal, however, remains fully indexed to prices, and the difference is reflected in a lengthening of the amortization period for the mortgage.

When compared with the first alternative of no capitalization, the design with full indexation of mortgage payments displays both advantages and disadvantages. Monthly payments and principal outstanding for the two alternatives are compared in Figure 2. The primary advantages of 100 per cent indexation of payments are: (1) a better matching of real payments with real income over the entire duration of the mortgage, and (2) much lower initial payments than would be implied by the no-capitalization alternative. These two advantages can be used to improve the risk characteristics of mortgages while decreasing carrying costs, provided that two conditions are met: (1) that initial payments do not exceed a safe fraction of the borrower's income when the mortgage is contracted, and (2) that an adequate down payment is required. These qualifications imply that Danish-style indexed mortgages could likely not be introduced in Canada without either lowering maximum loan-to-value and debt service ratios from current values or substantially increasing the underwriting charge for government insurance of such mortgages. In effect, 100 per cent indexation of payments corresponds to implementing the real payments pattern of conventional mortgages in a zero-inflation world, and so requires a reversal of the increases in loan-to-value and debt service ratios that have been permitted during the last fifteen years as inflation has made conventional mortgage loans less risky.

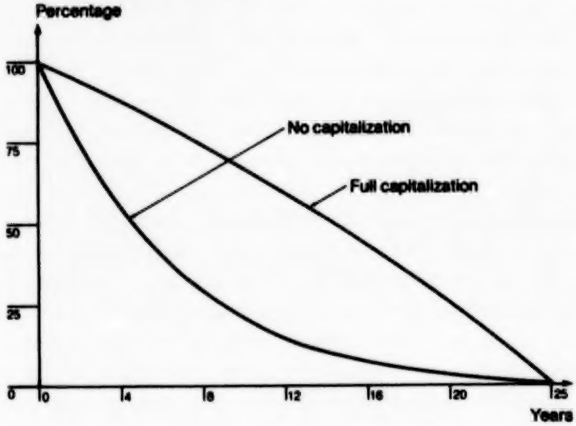
FIGURE 2. Comparison of two indexed mortgages: full capitalization vs. no capitalization

Note: All values (both payments and principal) are expressed as percentages of the original principal amount of the loan.

A. Real monthly payments



B. Real principal outstanding



Assumptions:
1. Real interest rate of 2.5 per cent.
2. 25-year amortization.
3. Inflation rate of 12 per cent.

There are two important disadvantages to Danish-style indexed mortgages. The first is that immediate full indexation of monthly payments may cause problems for wage-earners whose wages do not keep up with inflation over the short run (over a period of, say, five years). The Danish scheme attempts to deal with this problem by providing for a cap on the indexing of payments in years in which average wages do not increase as fast as prices.* The second disadvantage is that the lower rate of decline in real principal outstanding may not be fast enough to allow for increases in the likely range of variation of real wage prices, even though this real rate of decline matches what is implied by a conventional fixed-rate mortgage in a zero-inflation world. This disadvantage is underlined by noting that the rate of inflation averaged 1.5 per cent even during the 1953-65 period, and that the range of likely variation in real housing prices has been increased since the 1960s by the extent to which housing has become an instrument for speculating on the rate of inflation. The speculative component of current demand for housing has increased the likely volatility of housing prices, and so increased the riskiness of mortgage loans. Because the uncertainty of the rate of inflation in future years increases with time, this recent additional source of volatility increases the desirable speed with which real outstanding principal should be reduced.

In addition to these two real disadvantages, there is a problem of market perception that can arise because of unfamiliarity with indexed instruments. This problem is that market participants may assume a mortgage to be undesirable simply because outstanding principal is expected to grow substantially in nominal amounts. The extent of the likely increase in nominal principal outstanding is shown by the following tabulation (all figures in percentages of original loan amount):

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* Except for this proviso, the legislation permitting Danish mortgage lending institutions to offer indexed mortgages and to finance these by indexed bonds with identical terms provides the tax benefits of indexation to investors only where the inflation adjustment of principal is fully capitalized. It thus does not permit more efficient variants of the type proposed in the final section of this paper. The White Paper proposals do not impose a similar restriction.

	Nominal principal outstanding
After 4 years	138.2
After 7 years	172.2
After 10 years	208.7
After 15 years	260.0

While concern at such an increase may in part be "money illusion" (that is, be the result of not perceiving correctly what has happened to real values), the fact that such perceptual problems may arise must be taken into account.

It is noteworthy that in Denmark homeowner mortgage interest is deductible for tax purposes, making the after-tax cost of borrowing through indexed mortgage loans higher than for conventional loans.* In spite of this, 25 per cent of homeowner mortgages taken out since April 1982 have been indexed mortgages.† This reflects the attractiveness to borrowers of contracting in real terms.

DIMENSIONS OF RISK

There are several dimensions of risk that need to be taken into account. These include:

(i) matching costs to homeowners' incomes;
(ii) making homeowners' equity more predictable;
(iii) reducing the likelihood of unexpected redistributions of wealth between borrowers and lenders; and
(iv) reducing unexpected fluctuations in carrying costs.

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* Current conventional mortgage interest rates (20 per cent) and inflation rates (10 per cent) are roughly similar to those prevailing in Canada. With real interest rates on indexed mortgages in the neighbourhood of 2 per cent, the after-tax interest cost of an indexed mortgage loan is higher than that of a conventional mortgage loan for taxpayers with marginal tax rates of 45 per cent or above. Since the 50 per cent tax bracket begins at a taxable income of $13,000, virtually all prospective home buyers are in tax brackets with marginal rates exceeding 45 per cent.

† Estimate of the Danish Ministry of Housing, July 1982.

The impact of inflation on the third of these objectives is taken care of by the indexation of principal for the purpose of calculating interest. Attention will therefore be focussed on the other three, discussing how they occur in the long term and the short term.

Matching costs to homeowners' incomes

Risks arise primarily from the variability of relative prices. In the case of homeowners' income from labour, such risks become lower in the long term than in the short term. That is, homeowners' real wages are easier to predict over the long term (over a span of decades) than over the short term (over several years). Real wage differentials between occupations that arise in the short run are reduced in the long run by shifts in the supply of labour. As a result, real wages increase for different occupations at a relatively uniform rate in the long run, even though the average productivity of workers in different occupations may not increase uniformly. For example, the productivity of restaurant waiters probably has not changed markedly over the past four decades. Nevertheless, to continue to attract unskilled workers to such jobs, it is necessary to pay them approximately the same real wages as they would obtain in industries in which labour productivity has increased. This result is brought about by adjustments in the relative prices of products (for example, prices of restaurant meals rise in real terms) and in the number of workers employed in each industry.

Given this relatively low variability in the growth of real wages in the long term, risks for homeowners are reduced if the long-term cost of the housing services they consume can be matched as closely as possible to their real incomes. This implies that risks are reduced over the longer term if homeowners can contract in real terms. From the viewpoint of what a working household can afford to pay in current carrying costs, there is relatively little risk in assuming that a homeowner's real wages will be at least as high at the end of the amortization period of a mortgage as they are when the mortgage is taken out. On average, real wages will grow over the long term at a rate equal to the average increase in labour productivity.

Over the shorter term, real labour incomes are more variable. This greater variability arises from three sources: temporary unemployment, short-term fluctuations in real wage differentials between occupations, and cyclical fluctuations in average real wages (including changes in average real wages arising from variation in international terms of trade). In addition, increases in the variability of the rate of inflation increase the short-run variability of real wages because of lags in the adjustments of wages to unexpected changes in inflation.

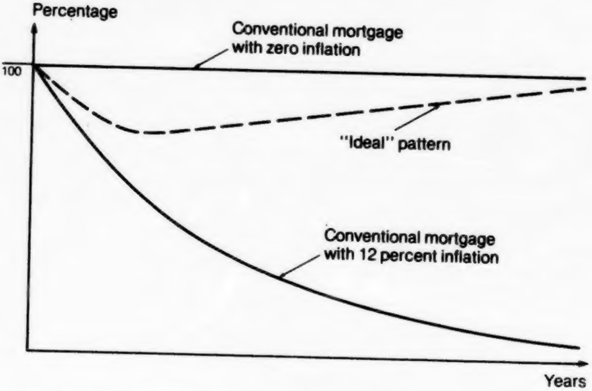
This greater variability of real wages in the short term implies that an ideal mortgage design might be one in which monthly payments decline in real terms over the first few years of a mortgage, but then rise over the last half of the mortgage. The payments pattern of conventional level-nominal-payment mortgages is compared with this "ideal" in Figure 3. As the chart shows, conventional mortgages are not far from this ideal in which inflation rates are near zero. However, they build in an excessively fast decline in real payments when expected inflation is at higher levels. At current inflation rates (12 per cent), real payments are cut almost in half after only five years, and by over 70 per cent after ten years. There are no conceivable circumstances in which real wages of workers could decline this much.

Over the past decade, the effect of inflation on the pattern of real monthly payments has been partly compensated for by permitting borrowers to enter into mortgages for which initial payments are at high ratios to incomes. Effectively, this builds in a period of time in which debt service ratios are uncomfortably high, on the assumption that inflation will reduce them to safer levels within a few years. A less risky pattern would be one in which real payments were higher in subsequent years and lower in the initial years, making real payments more uniform over the amortization period and thus coming closer to the pattern to which conventional mortgages conformed prior to the inflationary upsurge of the 1970's.

The "ideal" pattern shown in Figure 3 implies a planned level of real monthly payments which is relatively uniform over the duration of a mortgage. It does not deal with the question of how payments should be adjusted when there is an unanticipated change in the rate of inflation. As noted earlier, there may be important lags in the response of wages to changes in inflation. These lags may increase the short-term variability of real wages. To allow for this, it would be wise to allow a corresponding lag in the adjustment of real monthly payments.

FIGURE 3: Real monthly payments: conventional mortgage vs. "ideal"

Note: All monthly payments are expressed as percentages of the initial monthly payments.



Making homeowner's equity more predictable

Other things equal, both borrowers and lenders would prefer to see the homeowner's equity made more predictable. Consequently, both borrowers and lenders can be made better off if the mortgage can be designed so as to minimize the extent to which it magnifies the effect on homeowner's equity of any changes in home values due to unanticipated inflation. Indexing principal for the purpose of interest calculations accomplishes this, through eliminating the unexpected redistributions of wealth between borrowers and lenders that would otherwise be caused by changes in the rate of inflation.

An issue that is closely related to the predictability of a homeowner's equity in his house is what happens over time to the maximum limit on the amount which it is "safe" from a lender's viewpoint to have outstanding on the loan. There are long-term and short-term sources of variability in real housing prices and therefore in the homeowner's equity as well.

The discussion of long-term sources of risk will proceed in two steps, first assuming (counterfactually) that the relative prices of homes are not affected by inflation-induced tax distortions, and then turning to the effect of the tax distortions. Ignoring tax effects, there is little reason to assume that real house prices will be affected by inflation in the long run. Real house prices are uncertain in the long run, especially in smaller urban areas that are dependent on employment created by single industries. In larger urban areas, they are subject to approximately the same degree of uncertainty in the longer run as average real incomes. Consequently, it is relatively safe to assume that house prices in major urban areas will rise at something close to the rate of inflation over the longer run, though this must be qualified by noting that the relative prices of existing lower-quality housing may fall somewhat over the longer term as average real incomes rise. Unanticipated effects of demographic changes (such as changes in interprovincial migration) provide some additional sources of longer-term variability in relative prices, though such effects occur slowly and so are normally reflected in changes in the supply of new housing.

Existing tax distortions and tax subsidies increase the variability of real housing prices in the longer term, and also provide a source of covariation between real housing prices and inflation. The covariation arises from the joint effect of the non-taxation of capital gains on principal residences and the taxation of the inflation component of capital gains realized on other assets; an increase in inflation generally causes the expected level of future inflation to rise, thus increasing the expected value of taxable capital gains (and hence real taxes) on other assets and so increasing the real value of a principal residence as a tax shelter. This covariation would be materially reduced if the White Paper proposals were implemented and allowed investors to put their funds in other assets (indexed deposits, RSIP's) in which only the real component of income is taxed. Subsidy programs for housing also increase the projected variability of the relative prices of rental and ownership housing as perceived by investors, particularly because of the historically high frequency with which such subsidy programs have been changed.

In the shorter run, housing prices are clearly subject to more variability. They are affected by temporary fluctuations in demand caused by changes in real interest rates and in the monthly payments required on new mortgages, as well as by fluctuations in real incomes and in consumer confidence.

The effects of long-run and short-run factors on the likely range of variability of real housing prices are shown in Figure 4. As this figure

FIGURE 4: Changes in real housing prices over time: likely ranges of variation in absence of tax distortions

Note: All values shown are expressed as percentages of the house at the time the mortgage is made.

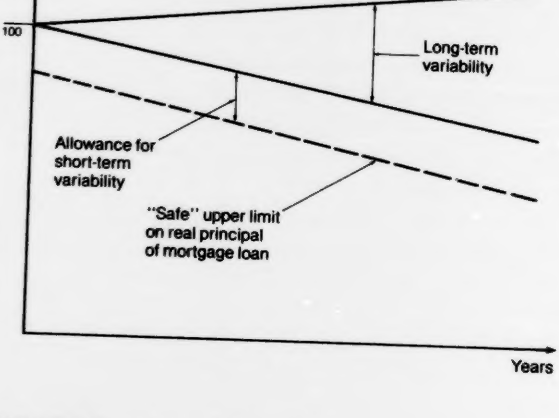
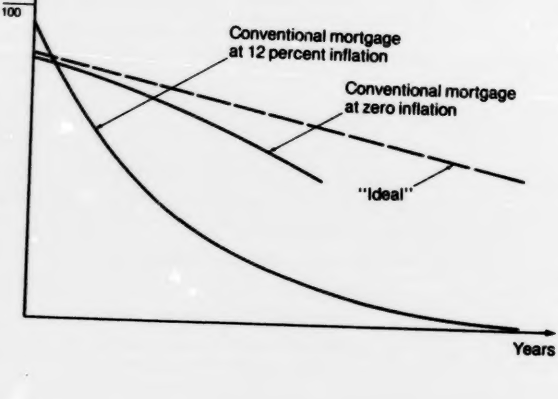


FIGURE 5: Real principal outstanding: conventional mortgage vs. "ideal"

Note: Principal outstanding is expressed as percentages of value of the house at the time the mortgage is made.



shows, an "ideal" mortgage should reflect these factors by requiring a relatively high down payment to allow for possible temporary fluctuations in values. Further, the real principal outstanding on which lenders are at risk must decline over time to reflect the long-term risk of relative price variations.

The way in which conventional mortgages compare with this "ideal" is shown in Figure 5. At zero or low inflation rates, a conventional mortgage with a 30 per cent down payment probably matches this "ideal" fairly closely. However, at current inflation rates, conventional mortgages depart from this "ideal" pattern in important respects. First, they decline at a much faster rate than is necessary. Second, to compensate for this, down payment requirements have been lowered, particularly on government-insured mortgages. These lower down payments would result in excessively risky mortgages were it not for the fact that current inflation rates reduce the real principal outstanding to safe levels within two or three years.

It should be noted that the extent of the allowance that needs to be made for the effect of temporary fluctuations in demand (and so reflected in down payment requirements) is influenced by mortgage design. In present circumstances, real interest rates are made more volatile by uncertainty about future inflation and by the consequent shortening of terms. The effect on demand of this increase in interest rate volatility has been further enhanced by the additional variability in carrying costs caused by the way in which conventional monthly payments are affected by changes in inflation. There is consequently some potential for reducing these sources of short-term fluctuations in real housing prices if indexed mortgage loans become generally available.

Reducing fluctuations in carrying costs

The above discussion of the matching of costs to homeowner incomes concentrated on what it is realistic to assume about the potential variability of homeowners' incomes. The discussion concluded that it is reasonably safe to project homeowner's current real incomes over the amortization period of the mortgage, as was in effect done in the design of conventional mortgages used in the low-inflation world of the 1950's and 1960's.

One of the important ways in which inflation has increased the riskiness of conventional mortgages is through increasing the volatility of monthly payment requirements over the life of the mortgage. With mortgages made on five-year terms, the borrower is subject to unpredictable changes in the real level of monthly payments when mortgages are renewed. These changes occur both because of changes in real interest rates and because of the way in which changes in the inflation rate affect conventional monthly payments. This unpredictability has been further enhanced by the shortening of mortgage terms. From the borrower's viewpoint, mortgage riskiness is increased by increasing volatility in the ratio of real payments to real income.

More efficient indexed mortgage designs

The discussion in the previous section makes it clear that, to minimize risks for borrowers and lenders, a mortgage should ideally be structured to have the following properties:

- an initial down payment large enough to absorb likely short-term variation in housing prices;
- a reduction in real principal outstanding fast enough to allow for the likely growth in the range of variation in real housing prices over the longer term;
- a moderate planned reduction in real payments over time, provided that initial monthly payments are at a sustainable ratio to incomes; and
- as much smoothness and predictability as possible in real payments, but with some restrictions on the speed with which unanticipated increases in inflation are reflected in increased monthly payments.

At the same time, it is also desirable for an indexed mortgage to depart as little as possible from the structure of conventional mortgages. There are costs to introducing unfamiliar mortgage designs, and hence a tradeoff to be made between the benefits of improved design features and the benefits of minimizing change.

The riskiness of indexed mortgages may be modified by changing down payment requirements and minimum debt service ratios. Alternatively, other terms may be altered to modify risks. These alternative modifications might include:

- reducing the amortization period;
- building in a planned decrease in real payments; and
- limiting the annual increase of nominal monthly payments to a percentage that is less than the inflation rate.

The first two modifications both increase initial monthly payments relative to what they would otherwise be, and so contribute to a faster planned reduction in real outstanding principal. The third implies a planned reduction in real monthly payments to the extent that payment indexation is less than 100 per cent, and so is one way of building in such a planned decrease.

The second and third modifications both have the additional effect of reducing the risk of borrowers facing increases in payments that are larger than their current increases in incomes. The planned decrease in real payments does this by keeping the rate of increase in nominal payments always less than the rate of inflation by a constant differential. The limited indexation of payments in effect makes this differential variable, setting it at a fixed fraction of the inflation rate. The latter is probably easier to sell to prospective borrowers, but may cause an excessively rapid decline in real payments if the inflation rate is substantially higher than expected. While such a decline may be offset when mortgage terms are renegotiated (say every three or five years), this may result in undesirably large adjustments of monthly payments at such times.

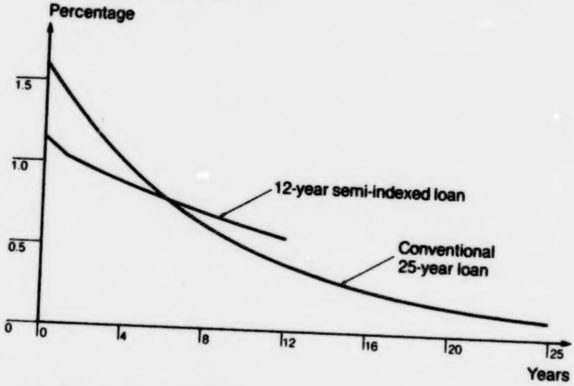
An example of an indexed mortgage with modified terms is compared with a fixed-rate conventional 25-year mortgage in Figure 6. The indexed mortgage is designed to have half-indexation of monthly payments, thus building in a planned yearly reduction in real payments amounting to 5.4 per cent at an expected inflation rate of 12 per cent. The mortgage is also amortized over 12 years instead of 25 years. As in previous comparisons, the real rate of interest on the indexed mortgage loan is assumed to be 2.5 per cent; the nominal interest rate on the conventional fixed-rate mortgage is set at 19 per cent. The 12 per cent inflation rate is assumed to persist over all 25 years so that the comparison is of planned real payments and real principal outstanding.

As this comparison shows, the monthly payments on this 12-year semi-indexed loan start out 25 per cent below those on the conventional loan but decline in real terms at a slower rate. After six years, the monthly

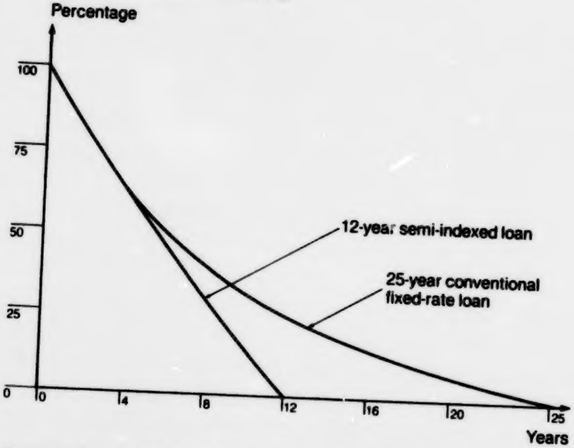
FIGURE 6: Comparison of 12-year semi-indexed mortgage with conventional 25-year fixed-rate loan

Note: All values are expressed as percentages of the original loan amount.

A. Real monthly payments



B. Real principal outstanding



Assumptions:
1. Real interest rate of 2.5 per cent on indexed loan.
2. Nominal interest rate of 19 per cent on conventional loan.
3. Inflation rate of 12 per cent.

payments on the two loans are approximately equal, and thereafter are higher for the indexed loan. Nevertheless, even though higher than on the conventional loan, the real level of payments on the indexed loan in the seventh and subsequent years of the mortgage is at least one-third below what it was when the loan was taken out. The rate of decline in real payments leaves ample room for variations in real incomes.

Except in the first two years of the mortgage (when the nominal principal outstanding on the indexed loan exceeds that on the conventional loan by 0.8 per cent), the planned reduction in principal outstanding is faster than for the conventional loan. The difference is seen very clearly in the following comparison of the nominal principal outstanding on the two alternative loans (all figures are percentages of the original loan amount):

	Nominal principal outstanding	
	Indexed mortgage	Conventional mortgage
After 4 years	96.7	98.7
After 7 years	80.3	96.9
After 10 years	42.9	93.9

This faster reduction is more attractive for the borrower as well as for the lender, reducing the amount of non-deductible interest which must be paid by the borrower.

The indexed mortgage with faster amortization and partial indexation of payments is potentially much more attractive to the borrower than the alternative design with no capitalization presented in the first section. The 12-year semi-indexed mortgage is paid off in half the number of years, and yet has a smaller initial monthly payment. Monthly payments are higher for the 12-year semi-indexed mortgage only in the last two-thirds of its duration, at which point they are considerably reduced in real terms so that the borrower can easily afford to keep them at this higher level.

With only partial indexation of payments, the effect of inflation at higher rates than expected is to increase the outstanding principal and so to increase the length of time it takes before the mortgage loan is fully repaid. Given partial indexation, it would be advisable to provide for recalculation of the mortgage payments periodically (say every three or five years) to ensure that real payments are not excessively reduced when the rate of inflation has increased substantially.

To illustrate the impact of a higher-than-expected inflation rate, the effect of a 20 per cent inflation rate is analyzed. To provide a "worse case" scenario, it is assumed as before that the rate of inflation is assumed to be 12 per cent (as before) at the time the mortgage contract is signed, but that the yearly rate of inflation immediately moves to 20 per cent and stays at this higher level throughout the next 25 years. Under these circumstances, the lender is clearly much better off with an indexed loan, even where the additional real return from the indexed loan (relative to what a conventional loan would have provided) is all capitalized in the form of higher principal outstanding. While in such circumstances it is riskier to have the additional inflation adjustment capitalized than to have it paid to the lender immediately, it is clearly much better to have it capitalized than not to have it at all. This is essentially what happend with the 12-year semi-indexed mortgage described earlier. If the rate of inflation stays at its expected level of 12 per cent, there is virtually no increase in nominal principal even in the first year. However, if the rate of inflation suddenly rises to a sustained 20 per cent, the nominal principal outstanding is increased by most of the unexpected increment in the inflation rate. With an 8-percentage-point differential between the actual and expected inflation rates, the nominal principal outstanding is increased by almost 8 per cent in the first year. The effect in subsequent years is shown by the following tabulation (all figures expressed as percentages of the original loan):

	Nominal principal outstanding on 12-year semi-indexed mortgage	
	With 12% inflation	With 20% inflation
After 4 years	96.7	132.6
After 7 years	80.3	142.1
After 10 years	42.9	125.2
After 13 years	0.0	47.5

It should be emphasized that these amounts are of course much smaller in real terms. The nominal principal outstanding peaks in the seventh year, at which point it is actually only 39.7 per cent of the original loan amount in real terms. The real principal outstanding after 13 years is less than one-tenth of the nominal amount; it is fully paid off by the end of the fourteenth year.*

It is useful to compare the performance under unexpectedly high inflation of the 12-year semi-indexed mortgage with that of the 25-year indexed mortgage with no capitalization. This is done in Figure 7. As Part A of this figure shows, the real monthly payments of the semi-indexed 12-year mortgage decline fairly smoothly (albeit less so than with the inflation rate pegged at 12 per cent). By contrast, the no-capitalization design causes a large unexpected increase in real payments in the second year of the mortgage; the nominal monthly payments in the second year are 92 per cent higher than in the first year. This sharp increase illustrates the major problem in the no-capitalization design: namely that, by focussing excessively on minimizing risks associated with increases in nominal principal outstanding, the risks associated with volatile monthly payments are increased substantially. Further, the inflation-induced reduction in real monthly payments induced by the 20 per cent inflation rate is substantially greater for the no-capitalization design. Even though real monthly payments are initially 25 per cent higher for the no-capitalization design than for the 12-year semi-indexed mortgage, they become 52 per cent lower after ten years.

The purpose of Figure 7 is to show the effect of a sustained higher-than-expected inflation rate. The differential volatility of payments under the two indexed mortgage designs is thus only partially illustrated. The volatility of the monthly payments for the no-capitalization design would be even greater if shown for a more realistic situation in which the actual rate of inflation fluctuates sharply.

Part B of Figure 7 shows the real principal outstanding for the two alternative designs. As noted earlier, the capitalization of the adjustment for the unexpected increase in inflation results in higher initial real principal outstanding on the 12-year semi-indexed mortgage; this increase in real principal consists of most but not all of the benefit realized by the lender from the protection afforded by indexation of his return. While this increase does not occur for the no-capitalization design, the faster reduction in real monthly payments for this design results in slower repayment of the entire loan principal.

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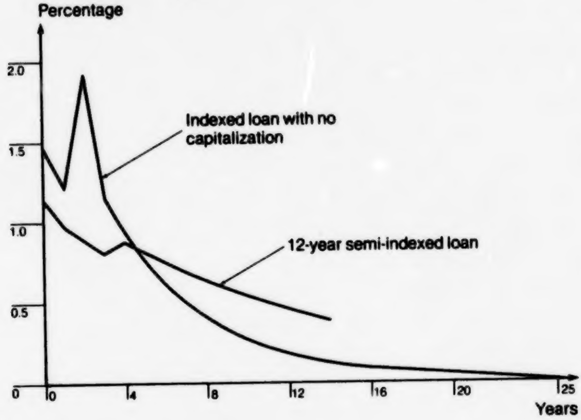
* It should be noted that it is assumed that indexed payments are recalculated after the end of the third year, but that this recalculation permits an extension of the loan amortization period. The monthly payments are increased 21 per cent in this recalculation, which raises them back to what they would have been in real terms with 12 per cent inflation.

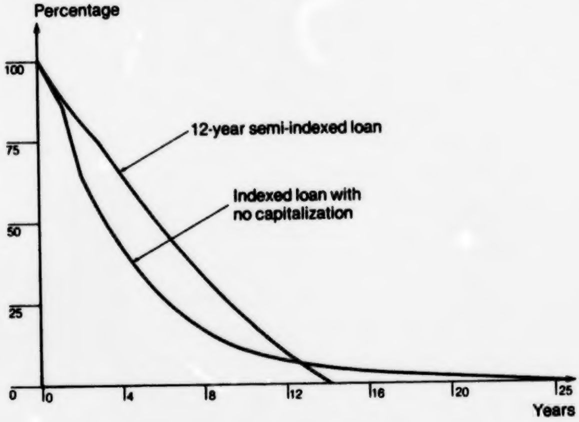
FIGURE 7: Comparison of alternative indexed mortgages under 20 percent inflation

Note: All values are expressed as percentages of the original loan amount.

A. Real monthly payments



B. Real principal outstanding



Assumptions: 1. Real interest rate of 2.5 per cent.
2. 25-year amortization for indexed loan with no capitalization.
3. 12-year amortization for semi-indexed loan in which principal is indexed but payments are half-indexed.

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